



9.3 | Nobeltec® Navigation Software User's Guide

Nobeltec Navigation



InSight Radar 2 (IR2)

The all-new IR2 leverages the power of the PC to bring together the world's best navigation software with the familiarity of traditional radar to create the ultimate navigation system. IR2 offers unparalleled chart plotting and radar abilities that provide higher resolution and greater confidence.

IR2 surpasses traditional radar systems through its use of the award-winning Visual Navigation Suite and Nobeltec Admiral. These navigation programs make the IR2 easy-to-use, affordable to update and provide functionality not found on other radars. What's more, Nobeltec's IR2 models can be connected to a vessel-wide network providing all of your nav stations with radar and chart plotting data for true redundancy.

<i>Nobeltec Product</i>	<i>Part #</i>
InSight Radar 2 (IR2)	Call



Serial Port to USB Converter

Serial Port to USB Converters are a great tool for when your computer does not have an available serial port. The converters work by allowing you to plug in any NMEA 0183 device into the converter and then using an available USB port to receive the data. Jeppesen marine offers a Single-Port and a 4-Port converter.

<i>Nobeltec Product</i>	<i>Part #</i>
Single Port Adapter (RS232)	RALXX00013
Single Port Adapter (RS422)	RALXX00012
2-Port Adapter	RALXX00010
4-Port Adapter	RALXX00009

Welcome

Thank you for purchasing Jeppesen Marine's Nobeltec® Navigation Software! This User's Guide is written for an audience assumed to have a mid-level, pre-existing knowledge of computer usage and the principles of marine navigation. Do not use this document and software to replace actual navigation training and experience, but as a valuable navigational aid.



WARNING: Nautical navigation is a serious undertaking and should only be engaged in by persons trained and experienced in such navigation.

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Do You Have Everything?

Before installing the software, make sure you have received the following:

- Nobeltec Software DVD
- Passport World Folio DVD
- User's Guide (*this book*)
- Serial Number (*North America*)
- Dongle (*Admiral/International only*)
- Serial Cable (*full package only*)



NOTE: DO NOT DISCARD older generation World Folio Chart CDs, they can be used with newer versions of Nobeltec Navigation Software.

Please fill out the **My Nobeltec Program and Chart Information** table located inside the back cover with your serial and/or Dongle number.

System Requirements

Minimum System Requirements - higher system requirements may be appropriate if multiple advanced features are used concurrently:

- Microsoft® Windows® 2000/XP Home/Professional (latest Service Pack may be required for Technical Support troubleshooting)
- Pentium® IV 3.0 GHz processing power or equivalent (Dual Core/Processor is supported)
- 512 MB of RAM
- 160 MB available disc space (2-4 GB space required to store charts)
- 16 MB Video Card with 32 bit color VGA-compatible display (minimum 1024x768 resolution settings)
- 12x or higher CD-ROM drive
- DVD drive
- Monitor settings 1024x768, 32-bit color video
- Available Serial or USB COM port (USB requires an adapter)
- International Passport World Charts™ require a USB port (for Dongle)

Recommended - Windows® 2000/XP Pro; 2 GB RAM; Pentium D 930 (3.0 Ghz); 64+ MB 3D video graphics card w/OpenGL

Product Support

If you have a question about your Nobeltec Navigation Software, please first review this User's Guide. If you cannot find the answer you are looking for, please contact Jeppesen Marine Customer Support.



NOTE: Technical Support is free of charge for registered users.

For enhanced Technical Support, contact any one of our sales or technical support representatives about becoming a Jeppesen Marine VIP Member (North America only) or send an email to sales@nobeltec.com.

Registering Your Software

You must **REGISTER YOUR PRODUCT** in order to receive free product support. Visit the Nobeltec website, contact Jeppesen Marine Customer Support or contact your Nobeltec distributor to register your software.

Registering your software also allows Jeppesen Marine to send you notices of product upgrades and news of interest to Nobeltec product owners.

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1 Introduction

Nobeltec Navigation Software

This User's Guide covers information about Jeppesen Marine's two industry-leading software packages: **Nobeltec® Admiral™** and **Nobeltec Visual Navigation Suite™ (VNS™)**.

Visual Navigation Suite (VNS) is a feature-rich program that includes GPS and autopilot support, a full version of our award winning Tides & Currents software, limited target tracking and much more.

Nobeltec Admiral is our most complete package. Admiral has all of the power and benefits of VNS, but with advanced features such as Multiple-Monitor support, comprehensive target tracking, GlassBridge Network support, Sailing features and the exclusive NavView User Interface mode.

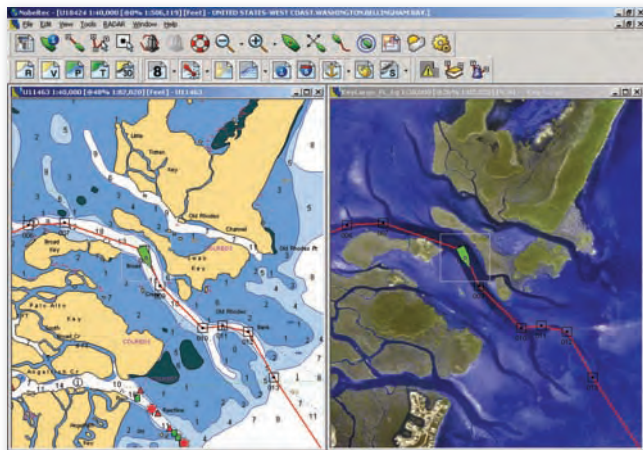


Figure 1.1 - Nobeltec Navigation Software Screen

Both of these industry-leading navigation programs can provide you with unparalleled awareness of your nautical environment, interfacing our exclusive brand of geographically referenced digital charts and marine navigation aids with other navigation tools, such as a Global Positioning System (GPS), radar, depth sounder, onboard camera and a DSC radio.

How Navigation Systems Work

Nobeltec Navigation Software is an important part of a complete onboard navigation system, which should include your computer, navigation software, digital nautical charts and a Global Positioning System (GPS) receiver.



Figure 1.2 - How Navigation Systems Work

This software ships with planning/overview charts, supplemented by Passport World Charts™ and Deluxe™ data (Chart Permits sold separately).

Passport World Charts™

Passport World Charts™ are Jeppesen Marine's signature brand of the entire World Folio of 14,000 nautical digital vector charts, subdivided into regions and stored on a series of CDs and DVDs available from Jeppesen Marine. Each Passport World Chart region is encrypted and you must purchase a Chart Permit number, sold separately, for each region you wish to use in order to access that region. Chart Permits can be purchased directly from Jeppesen Marine or from your local, authorized Nobeltec product dealer.

Passport Deluxe™ (North America/Hawaii Only)

Passport Deluxe is Jeppesen Marine's comprehensive supplemental nautical data solution for North America. It includes Passport World Charts™, photo charts, raster charts and 3D bathymetric charts, as well as an additional data pack containing Coast Pilot™, place name marks, local info marks, light and buoy data, geographic location marks and world port index information.

Like World Charts, each Passport Deluxe region is unlocked with a Chart Permit, sold separately. **Passport Deluxe Chart Permits include World Charts.**



NOTE: Not every chart region includes all of the listed data types. Refer to your Nobeltec product distributor for complete details.

Using a GPS Receiver

A GPS Receiver uses information from GPS satellite signals to calculate your position. Position information, along with speed and direction, is transmitted to the computer, where charting software translates that signal into a graphic display of your location on a digital nautical chart.

The Limits of GPS-Based Electronic Navigation

Seasoned navigators know not to rely on a single method of navigation when determining their position. Two or more methods should be used to guard against errors placing you or your vessel in a dangerous situation. GPS-based electronic navigation can provide a finely-tuned focus on your boat and surrounding navigational obstacles, however, like all technologies, GPS technology has limits. A prudent navigator will understand these limitations and how they possibly affect the safety of the boat and crew.



NOTE: NMEA 0183 1.0/1.5 only supports 2 digits of Latitude and Longitude precision (approximately 60 feet/18.2 meters). NMEA 0183 2.0 and higher supports 3 digits of Latitude/Longitude precision (approximately 6 feet/1.8 meters).

Another limitation to complete accuracy is the accuracy of your digital charts. Electronic charts are made by skilled cartographers, however, some cartographic surveys upon which digital charts are based were made over 50 years ago. Therefore, it is possible for errors to occur in the final products.

Navigation Software Plus Packs

Bathy Recorder

The Nobeltec Bathy Recorder, sold as a Plus Pack for Visual Navigation Suite (VNS) and Nobeltec Admiral, enables you to record sea floor topographic information using your Sounder/Depth Finder device and to incorporate that data into your 3D display.

When you use the Bathy Recorder to customize your sea floor charts, those charts will constantly improve with repeat trips over the same areas, enabling you to have a perfect picture of important sea floor terrain, as well as your favorite fishing and diving spots.

Fleet Manager

Fleet Manager interfaces with SkyMate® satellite hardware to provide you with the ability to track multiple vessels, plot vessel positions on vector charts, examine past tracks on each vessel and quickly send e-mail to any ship in your fleet. This tool is ideally used in a central location on shore, such as a fleet office. Each fleet vessel must be equipped with SkyMate hardware.

Sailing Plus Pack

The Nobeltec Sailing Plus Pack is an upgrade package available for Jeppesen Marine's Nobeltec Visual Navigation Suite and Nobeltec Admiral. Sailing Plus Pack is ideal for both cruising and performance sailboats because it provides customizable polar diagrams and computer-calculated lay lines that help sailors achieve the ultimate sailing experience.

The Polars provided in this Plus Pack are delivered through a partnership with US Sailing® and are designed to provide you with that organization's high-quality official polar data.

Tender Tracker Plus Pack (*Admiral only*)

Nobeltec Tender Tracker Plus Pack is as an upgrade package available to users of Nobeltec Admiral who are equipped with a Seetrac® Tender Tracking System. Seetrac's Tender Tracking System is a stand-alone radio frequency transmission system for secure transmission of key assets that can be interfaced with your computer through a standard COM port connection. When properly configured, Tender Tracker provides onscreen, up-to-the-minute tracking data about smaller affiliate watercraft (called "Tenders"), including smaller boats, jet skis, wave runners or even passengers carrying a wireless Seetrac Tender Unit (STU). Tenders can be viewed onscreen using your Admiral target tracking capabilities. Tender Tracker can greatly improve security and safety of your Tenders and passengers, keeping you constantly aware of their movements.

XM Plus Pack

In order to use XM/WXWorx, you must have an XM-compatible satellite receiver connected to your computer. XM/WXWorx provides a continuous weather feed over the robust XM satellite radio network, enabling you to download high-resolution, real-time weather data using the XMLink application to overlay that data inside of your Nobeltec Navigation Software, directly over your vector charts and planned routes.

2 Installation

Step 1. Installing Nobeltec Software

Install Nobeltec Navigation Software

1. Start your computer and, if possible, connect to the Internet. Close all open programs, *including any anti-virus software*



TIP: You must have Internet connection to register your charts.

2. Insert the Nobeltec DVD into the DVD drive.
3. The installer should automatically launch the setup wizard. Or open the CD files from **My Computer** and double-click on **setupvns.exe**.
4. Click **Next**. In the subsequent setup wizard screens, you can select from a number of setup options. Jeppesen Marine recommends that you accept the default program locations for all files.
5. When the installation is complete, close the installer by clicking **Finish**.

Installation Tips

Your Serial/Dongle Number

Your Serial Number is unique to your copy of Nobeltec Navigation Software. You must either input your **Serial Number** when you initially launch the product using the Activation Wizard or use a **Dongle** (with the Serial Number on the tag), which bypasses this requirement.



TIP: If you ever need customer support, you must have your Serial or Dongle Number available. Please write your Serial or Dongle Number in the **My Nobeltec Program and Chart Information** table inside the back cover of this User's Guide.

The Dongle

If you are using a Dongle with Nobeltec Navigation Software, you do not need a Site Key to access charts and supplemental data. Install the Dongle into an available USB port prior to launching the software for the first time.



NOTE: Some systems require a parallel port Dongle. Please contact your Nobeltec product distributor if you require a parallel port Dongle.

The Site Key (North America, no Dongle only)

In order to complete software installation, users in North America *who do not have a Dongle* must receive and input a **Site Key** from Jeppesen Marine within **30 days** of initially installing the software. Nobeltec provides *up to 3 computer-specific Site Keys for each Serial Number* (US Purchasers only). You may install the software in multiple locations, but will need to obtain a new Site Key for each installation in order to use the software after 30 days.



TIP: If you ever need to permanently uninstall the software from your computer, please contact Jeppesen Marine Customer Support in order to release the Site Key before completing the uninstall process.

To Get a Site Key

1. Launch **Nobeltec Navigation** from the icon on your desktop.
2. Input your **Serial Number** when prompted.
3. A window will appear containing an overview of Jeppesen Marine's Software License Agreement and a response prompt. If you agree to the terms of the Software License Agreement, click **I Agree**.
4. When the Site Key dialog appears, click the **Get Site Key** button.
5. There are three options available to get a Site Key:
 - a. If the computer you are using is directly connected to the Internet, select **From the Internet (automated)** and click **Next**. A Site Key will be automatically loaded and you can proceed with usage. **Remember to Register Your Product for free Technical Support; or**

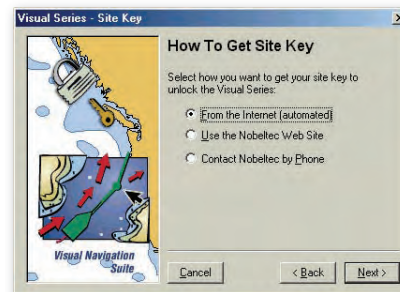


Figure 2.1 - Getting The Site Key

- b. If there is another computer available and connected to the Internet, select **Use the Nobeltec Web Site** and click **Next**. Write

- down the Site Code that displays and proceed to Step 6; *or*
- c. If you have no Internet connection at this time, select Contact Nobeltec by Phone and click Next. Call Nobeltec (800 732 2800) for a Site Key. Proceed to Step 7.
6. (For Step 5.b above only). Once you have access to a computer with an Internet connection, go to www.nobeltec.com/sitekey. Input the **Site Code** and your **Serial #** in the provided fields to generate a Site Key.
 7. Input the **Site Key** in order to open the navigation software.
 8. It is highly advised to **Register Your Product** at this time (see Page iii).

The Software License Agreement



ATTENTION: You may not use this product unless you agree to the terms of the **Software License Agreement**.

When you first launch Nobeltec Navigation Software, a digital copy of the Software License Agreement will display. By clicking the radio button labeled **I Agree**, you and all users of your copy of Nobeltec Navigation Software agree to be bound by the terms of the Software License Agreement and to release and hold Jeppesen Marine harmless from and against any and all claims, obligations and liabilities with respect to the product, except those specifically reserved in the License Agreement.

If you do not agree with the terms of the Software License Agreement, click the button labeled **I Do Not Agree** and the program will close. If you choose this option you may return the program to the original place of purchase within thirty (30) days of the purchase date.

Passport Charts and data (once unlocked) are not returnable.

Step 2. Installing Charts

Passport World Charts™ (International and Domestic Charts)

Passport World Charts are stand-alone digital vector charts subdivided into regions and stored on a single **World Folio** DVD or CD-ROM* that comes with your software. These charts are encrypted and you must purchase a Chart Permit number for each chart you wish to use in order to access it.



NOTE: *CD-ROMs can be provided in place of DVDs during initial purchase, if so requested. You will be required to pay shipping and handling expenses to replace DVDs with CD-ROMs.

Created from data provided by worldwide hydrographic offices, Passport World Charts are also called World Folios and abbreviated to "WF".



NOTE: World Folio discs are "backwards-compatible". You may continue to install charts for all regions you have purchased from your WF disc until you purchase a new disc. The lower a WF number is, the older the chart is. Jeppesen Marine offers a service to update charts on a one-time basis or annual update subscriptions. *Only WF19 and higher are supported by Jeppesen Marine technical support.*

Installing Passport World Charts

1. Install Nobeltec Navigation Software.
2. Purchase Chart Permit number(s) for all chart region(s) that you wish to use from Jeppesen Marine or any authorized Nobeltec product retailer.
3. With all software programs closed, insert the World Folio DVD into the DVD drive. ***Make sure that the WF number matches the Chart Permit you purchased (i.e. WF28).***
4. Follow the displayed instructions. When prompted, input the 20-digit Chart Permit number for every region you have purchased.
5. After every region you purchased has been input, click **Done** and then launch your Nobeltec Navigation Software. Newly installed Passport Charts will be available as soon as the program opens.



TIP: Chart Permits and product Serial Numbers are often confused due to a similarity in format. Always verify which code you are using.

Passport Deluxe™ Charts and Supplemental Data Sets

Passport Deluxe is Jeppesen Marine's comprehensive supplemental nautical data solution for North America. It includes Passport World Charts™, photo charts, raster charts and 3D bathymetric charts, as well as an additional data pack containing Coast Pilot™, place name marks, local info marks, light and buoy data, geographic location marks and world port index information.

Like World Charts, each Passport Deluxe region is unlocked with a Chart Permit, sold separately. ***Passport Deluxe Chart Permits include World Charts.***




NOTE: Not every Passport Deluxe region includes all of the above-listed data types. Refer to the Jeppesen Marine Nobeltec website at www.nobeltec.com or your Jeppesen Marine Nobeltec product distributor for complete details.

Installing Current Passport Deluxe Chart Permits

Before you install Passport Deluxe charts and supplemental data, please redeem the product voucher for one complimentary Chart Permit that is included with Passport Deluxe. Once entered, this Chart Permit gives you access to all the charts and data available for the complimentary region.

1. Purchase Chart Permit number(s) for all chart region(s) that you wish to use from Jeppesen Marine or any authorized Nobeltec product retailer.
2. With all programs closed, insert the World Folio DVD into the DVD drive.
3. The installer should automatically launch the Setup Wizard.
4. Click **Redeem Voucher** to open the Voucher Redemption webpage.
5. Once you redeem the voucher, write down your complimentary Chart Permit number in the **My Nobeltec Program and Chart Information** table inside the back cover of this Guide.

 **NOTE:** You may also wish to purchase other chart regions from Jeppesen Marine at this time. Write down the Chart Permit number for each region.

6. Return to the Setup Wizard. When prompted, input the 20-digit Chart Permit number for every region you have purchased.
7. When all Chart Permit numbers are entered, click **Done** and launch your Nobeltec Navigation Software. Newly installed charts are available as soon as the program opens.


Installing Supplemental Passport Deluxe Data

Each Passport Deluxe region also comes with supplemental navigation data, such as photo, raster and bathymetric charts. There may also be additional data DVDs included with your Passport Deluxe packaging.


To successfully load additional/supplemental Passport Deluxe data:

1. Install your Passport Chart regions. If you do not install your Passport Charts first, the additional data packs cannot be installed.
2. After the Passport Charts have been installed, close your Nobeltec Navigation Software and insert the Passport Deluxe Data DVD into your DVD drive.
3. The Passport Data installation wizard will automatically search your PC for Passport regions. A list of data types with a "+" sign next to each will display. Click on the "+" sign to see the regions available for that data type. Place a check-mark in the box next to the region names and types you wish to install. *You cannot install Passport Charts or other data for any region for which you have not yet purchased a Chart Permit.*


4. When installation is complete, click **OK** to launch the Nobeltec Navigation Software. The new data will be available upon launch.

 **NOTE:** CD-ROM discs are available on request. For CD-ROM installation, close all programs, insert the CD and follow onscreen prompts.

Installing Legacy Passport Charts and Permits

 **WARNING:** The following installation instructions do not apply for charts newer than WF18, as World Folios newer than WF18 have an auto-install feature. Only World Folios 19 and higher are supported by Nobeltec Technical Support.

1. Start your Nobeltec Navigation Software program.
2. Click **File | Chart Table | Install**.
3. Click the **Install** button to the right of the Chart Table (Figure 2.2).
4. Insert the Passport World Charts DVD into the DVD Drive.

 **TIP:** If you purchase an annual subscription, your chart permit will automatically unlock charts on future World Folio DVDs as they are released for the duration of time permitted on your subscription.

5. In the Permit field, input the Passport Chart Permit. Once a valid permit is input, the permit will appear in the window below.
6. Once you have input all permits purchased, click **Finish**.

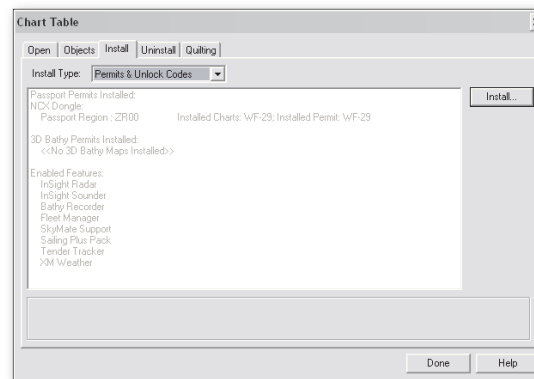



Figure 2.2 - Chart Table Install Tab

 **TIP:** If you are installing Passport charts through a network drive or have copied the chart database to your hard drive, you need to tell the Chart Setup

Wizard where to locate the charts. Browse to locate the file "Setup.id".

7. Tell the Chart Setup Wizard where to locate the charts (usually on the Passport Charts DVD | Charts folder) by browsing to the Charts folder.
8. Click **Next**.
9. When asked to install the charts on your hard drive, click **Yes**.

Installing New Chart Permits and Product Unlock Codes

Chart Permits unlock a Chart region and Unlock Codes unlock supplemental features sold separately, such as Radar, Bathy Recorder, etc. For Chart Permits, please make sure that you have already redeemed the Product Voucher that came with Passport Deluxe before loading new Chart Permits.

Whenever you purchase new Chart Permits or Unlock Codes, use the following steps to release the related charts/data/features.

1. Open your Nobeltec Navigation Software.
2. Click **File | Chart Table** and select the **Install** Tab.
3. From the drop-down menu, select **Permits and Unlock Codes**.
4. Click the **Install** button.
5. Input the 20-digit Chart Permit or Unlock Code(s) and then click **Finish**.
6. Close Nobeltec Navigation Software and relaunch. Products and Charts that you release using the Install Tab are immediately available upon relaunch of the software.

Step 3. GPS/Port Setup Wizard

The first time you launch Nobeltec Navigation Software, a dialog box will display, asking if you'd like to start the GPS/Port Setup Wizard.

Connect all of the NMEA peripherals to the computer, including GPS, compass and autopilot. These devices use Serial and/or USB ports. If your computer does not have Serial ports, Nobeltec recommends that you use SeaLevel® Serial-to-USB port adapters (available from a Nobeltec retailer) to connect to the external devices.

Make sure the GPS is installed, powered on and connected to the network or PC before commencing setup. Use Windows HyperTerminal to verify that the GPS is sending data to your PC. For more information about connecting your GPS and wiring peripheral devices see **Chapter 3 - GPS Setup**.

Using the GPS/Port Setup Wizard



TIP: If the GPS/Port Setup Wizard does not start automatically, select **Tools | Options | Ports: Configure** from the Main Menu. Click **GPS/Port Setup Wizard**.

1. When the Nobeltec GPS/Port Setup Wizard pop-up appears, click **Next**.
2. GPS/Port Setup Wizard searches all available Serial Ports for devices.
3. If you have connected a device to the computer on a specific port and GPS/Port Setup Wizard does not recognize the data, click the **View** button next to that port. If the data is garbled or unreadable, contact Jeppesen Marine Technical Support to troubleshoot your issue.
4. Follow the remaining onscreen instructions to complete setup.

Step 4. Radar Setup Wizard

A Note About Radar Setup

Nobeltec Navigation Software is designed to receive input from a Nobeltec InSight Radar 2 (IR2)™ or input from a Nobeltec InSight Radar 2 - Black Box (IR2-BB)™, which will digitize radar output from most industry-standard radars. Admiral and VNS 8.0 and later versions support input from up to two (2) IR2 Radars.

The IR2 or IR2-BB Installation Guide(s) instruct you how to physically connect these Nobeltec Radar products with your PC. Nobeltec Navigation Software will establish an interface with your hardware using the Radar Setup Wizard.

When you run the Radar Setup Wizard, all radars must be installed, powered on and connected to the network or PC. The IR2-BB (for non-Nobeltec radars) must also be connected and powered on. The Radar Setup Wizard will detect accessible radar units and walk you through setup of each.

Users of Admiral and VNS 8.0 and later versions can toggle between radar units by right-clicking on the radar display and clicking **Select Radar**.

Installing Your Radar Solution

Included with your Nobeltec IR2 or IR2-BB radar solution are installation and wiring instructions. The majority of technical support issues revolve around incorrect installation. Nobeltec strongly recommends using a qualified marine technician to install all radar hardware. If you install the hardware components yourself, be sure to completely test and verify your wiring and connections.

Depending on which radar solution you own, your radar may integrate to the computer using the USB (Universal Serial Bus) port or an Ethernet Network port. Instructions for each of these connections is documented in the IR2 or IR2-BB Radar Installation Guide.

NOTE: The Nobeltec IR2-BB requires a separate driver installation prior to setting up your Radar.

Setting Up Your Radar

This section assumes that you have correctly installed an IR2 Radar or the IR2-BB and that it is functioning properly. Once your radar or black box is installed, you can then integrate the radar feed into the software.

To integrate Radar features into Nobeltec Navigation Software, you must first use the Radar Unlock Code provided to you with your IR2 or IR2-BB purchase (see **Page 6 - Installing New Chart Permits and Unlock Codes**). Once you have unlocked Radar functionality, you will need to run the Radar Setup Wizard to establish radar settings.

NOTE: Make sure your radar and IR2-BB (if applicable) are powered on and connected to your PC prior to running the Radar Setup Wizard.

To launch the Radar Setup Wizard

1. Click **Start | Programs | Nobeltec | Radar Setup Wizard**.
2. Once the opening "splash" screen appears, click **Next**.

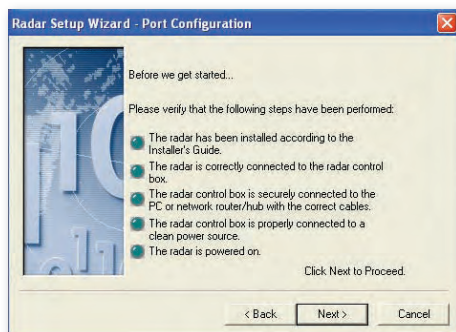


Figure 2.3 - Radar Setup Wizard - Port Configuration

3. Verify that you have accomplished all of the requirements as outlined by the bullet points shown in **Figure 2.3** and then click **Next**.

4. The Radar Setup Wizard will search your available serial and Ethernet ports for incoming information, including GPS and heading sensor data. Once your IR2 or IR2-BB is detected, click **Next**.
5. After your radar is located by the Radar Setup Wizard, you may rename your radar to an identifying name such as radar model. Click **Next**.



Figure 2.4 - Radar Setup Wizard - Searching for Radars

6. You may need to wait up to 30 seconds while the radar warms up. Once the radar is warmed up and transmitting data, the Radar Setup Wizard will show you a small view of what your radar output will look like. Click **Adjust** to open a Radar Control window. Use this window to modify your radar settings and improve radar viewing onscreen.
 - a. It may take a few minutes for the changes to be applied before you can verify changes made to your radar output in the small view.
 - b. Continue making incremental adjustments until you are satisfied with the radar output.

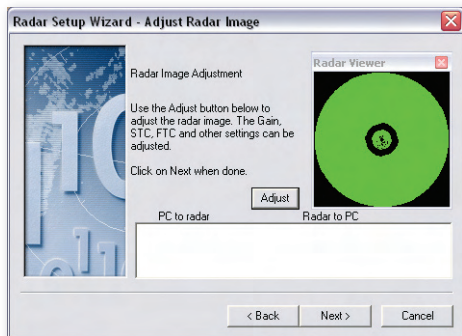


Figure 2.5 - Radar Setup Wizard - Adjust Radar Image



NOTE: Changes made to radar settings through an IR2-BB may not accurately display changes when shown in the small view. If this is the case, you may need to adjust the image based only on the full-size radar display.



TIP: It is possible you will need to cycle the power to your radar for the Radar Viewer image to appear.

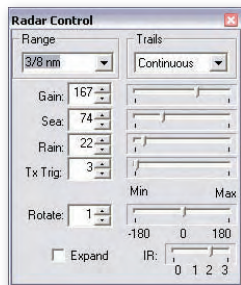


Figure 2.6 - Radar Control Window

7. Once you are satisfied with how the radar image appears, click **Next**.
8. Radar Setup Wizard has now completed. At this point you may configure another Radar or click **Finish** to exit the radar setup wizard.

3 - Hardware Setup

Overview

There are three steps required to connect a GPS, Autopilot or other peripheral (marine electronic) device to your computer.

1. Insure your computer has an available serial port or that a SeaLevel® USB/Serial Port Adapter is being used and connect the device to your computer.
2. Make the physical electrical connection to the device using a 9-pin connector.
3. Run the GPS/Port Setup Wizard to instruct Nobeltec Navigation Software to recognize output sentences transmitted by the device.

When you run the GPS/Port Setup Wizard, much of the setup is performed automatically. The Wizard is designed to intuitively recognize your hardware device and connect it to the software correctly. However, you must already have the device wired and transmitting data to an available serial port.

i **NOTE:** If your NMEA device uses an RS422 connection standard, consult your device manufacturer for wiring instructions, or contact Jeppesen Marine for an RS422 interface device. If your device wiring pins are labeled "Transmit/Receive +" or "Transmit/Receive -", it is most likely RS422 standard.

GPS Setup

Electrical Connection: GPS to Computer

Most GPS models have differing, proprietary connectors for data access. For this reason, the 9-pin data cable provided by Jeppesen Marine is unfinished on one end. You will also need a connector cable, which may have been packaged with your GPS originally or may need to be purchased from your GPS retailer or manufacturer.

Connection Type - RS232 (Typical Computer COM Port)	Pin #
Signal Ground (Ground)	5
Receive Data (Data In)	2
Transmit Data (Data Out)	3

Table 3.1 - Pinouts For The 9-Pin Nobeltec Serial Data Cable

Identifying the Wires - RS232

The serial port connector supplied by Jeppesen Marine has a label which identifies the wires to be used which are Data In (Receive), Data Out (Transmit) and Ground. These are three of the nine wires on the 9-pin serial connector. It is possible that your GPS cable will have more than three wires showing. Since there is no industry wire color standard other than pin numbers, you will need to refer to your GPS User's Guide to determine which wires to use.

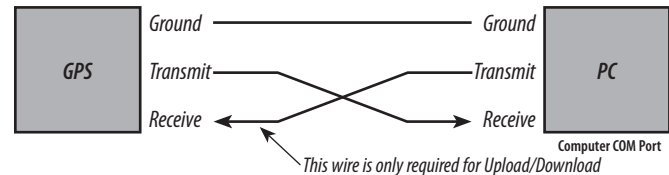


Figure 3.1 - Standard GPS to PC Connection

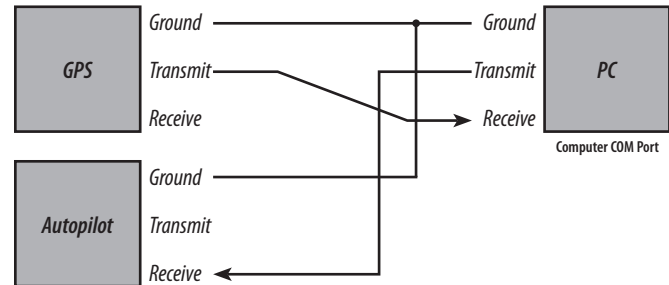


Figure 3.2 - GPS and Autopilot Integration

GPS Settings

Many GPS devices must be specifically configured to output data. Check your GPS User's Guide to determine if your GPS is outputting data or not and follow the instructions to turn NMEA output on.

i **NOTE:** These settings assume that the GPS will output information in the WGS84 Datum.

Connecting the Wires

After you have identified the wires, you can connect them. The Data Out (NMEA Out) wire from your GPS should be connected to the Data In wire in your computer cable. The Data In (NMEA In) wire from your GPS should be connected to the Data Out wire in your computer cable. The Ground (or Data - or Return) wire from your GPS should be connected to the Ground wire in the computer cable.

Connecting the Nobeltec Cable to Your Computer

Jeppesen Marine provides a standard 9-pin "D" connector (DB9) when you purchase VNS or Admiral. After this cable has been wired to your GPS, plug it into an available 9-pin serial port on your PC. If your computer does not have a 9-pin serial port you may need to use a SeaLevel® Serial-to-USB adapter.

Multiple Input Devices

You can select multiple COM ports for input. For example, a GPS on COM port 1 and a depth sounder on COM port 2. If you connect two devices which supply the same type of data, such as two GPS units, you must set up port priorities to tell the program how to handle multiple sets of similar data. (See **Port Priorities** on Page 11).

Manual Device Settings

You can manually set up your NMEA devices using the GPS/Port Setup Wizard. To set up your hardware device, select **Tools | Options | Ports:** **Configure** Tab.

Port Types



TIP: You can select the same COM port in two or more columns. If you select the same COM port for both Input and Output/Autopilot, then data can both come into and be sent from the COM Port (this is fairly common).

Input Ports: Designates COM ports that will receive data from other devices.

Output/Autopilot Ports: Designates ports to which data will be sent.

To Configure Input COM Ports

1. Select **Tools | Options** and then the **Ports: Configure** Tab.
2. In the Input Ports list, select the COM port(s) to use. A Warning Indicator will let you know if the port is unavailable or improperly configured.

3. Select a COM port and then **Configure This Input Port...** beneath the list box to restrict the type of incoming data (see Figure 3.4).
4. To fine-tune your settings, you may wish to include or exclude sentences specific to the device connected to each COM port. See **Tables 3.1-3.12** for sentences recognized by Nobeltec Navigation Software. Use the Protocol drop-down menu to select format (NMEA, Ockam or B&G).
5. If your device operates at a Port Speed (or baud rate) greater than 4800, set the correct Port Speed in the **Comx Input Configuration** window.
6. Click the **OK** or **Apply** button to save your changes.



NOTE: See **Chapter 2 - Installation** for information on automatic GPS/Port Setup Wizard usage.

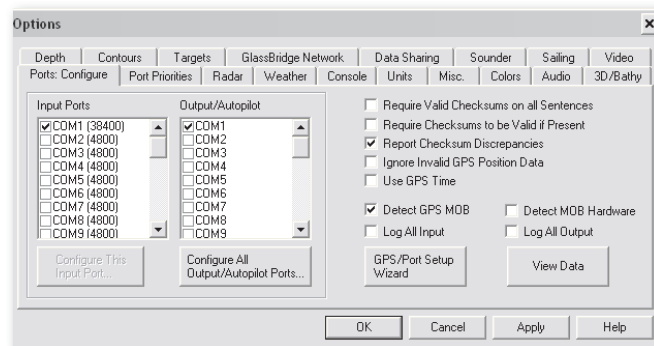


Figure 3.3 - **Tools | Options - Ports: Configure** Tab

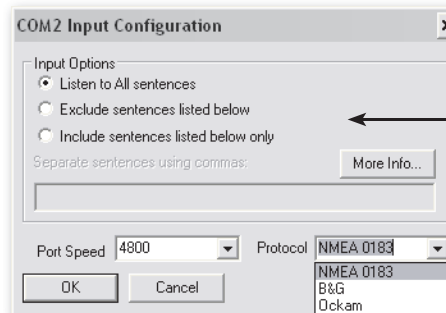


Figure 3.4 - **COM Port Input Configuration**

From this screen, you can include or exclude specific data sentences or entire device sentence streams. Click on the **More Info** button for more examples



NOTE: To configure autopilot ports see **Chapter 14 - Autopilot**.

Other Options on the Ports: Configure Tab

This tab also contains settings for several other options, including:

Require Valid Checksums On All Sentences: If this option is enabled, the software will ignore any data that does not contain a valid checksum (used to verify the validity of incoming data). Equipment conforming to previous versions of NMEA 0183 specifications do not always use checksums in all data sentences.

Require Checksums To Be Valid if Present: Verifies validity of sentences which contain checksums, but accepts sentences which do not contain checksums.

Report Checksum Discrepancies: Alerts if a checksum error is found.

Detect GPS MOB and MOB Hardware: Used to detect MOB sentences from some GPS units, or to connect to external MOB devices such as the Emerald Marine® Alert 2™.

Log All Input and Log All Output: Used for debugging and problem solving. Sometimes a Nobeltec product support provider will ask you to record input or output for diagnostic purposes (see **Page 14**).

Configure Autopilot: Opens the Configure Autopilot Settings dialog.

View Data: A red light indicates no data flow. A yellow light indicates some data problem(s), such as a miswired device, too much data being sent or bad, unshielded or twisted wiring. Green indicates mostly good data. This device will "listen" to the data before showing green.

Port Priorities

Port Priorities are used to resolve conflicts occurring when two or more devices send redundant information. Different position-indicating devices (GPS, LORAN, etc). may send slightly variant Lat/Lon values. Without prioritized inputs, the boat icon repositions with each valid position string.

Data from the highest-prioritized device is used first. If the primary device stops sending position information (for a user-specified period of time), the software automatically switches to the next prioritized device. If no valid position is received, it will switch to **Dead Reckoning** mode (see **Chapter 8 - Properties & Options**).

To Set the Priority

1. Select **Tools | Options** and then the **Port Priorities** Tab.
2. Click **Add**. The Add Device dialog box (**Figure 3.5**) will display.

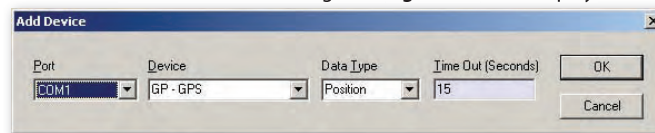


Figure 3.5 - Add Device Dialog Box

3. Choose (or input) the COM port, Device and Data Type and enter a time-out value.
4. Prioritize each position device in the same manner. Multiple devices may connect to the same port if they have different NMEA Talker ID's.



TIP: If your Talker ID is not displayed, type the ID # into the Device field.

5. Click the up or down arrows to place device entries in order, with the highest priority device at the top of the list.

NMEA and Other Device Support

Jeppesen Marine products support devices that conform to the National Marine Electronics Association (NMEA) 0183 standard: Jeppesen Marine also supports some device-specific sentences, such as B&G and Ockam.

The following tables contain all data sentences supported by Nobeltec Navigation Software:

Heading Information	
HCC	Compass Heading
HCD	Heading and Deviation
HDG	Heading, Deviation and Variation
HDT	True Heading
HDM	Magnetic Heading
HVD	Magnetic Variation, Automatic
HVM	Magnetic Variation, Manually Set

Table 3.2 - Heading Information

Radar Information	
TLL	Target Lat/Lon
TTM	Tracked Target Message

Table 3.3 - Radar Information

Target Tracking Information*	
DSC	Digital Selective Calling Information
DSE	Extended DSC Sentence
VDM	UAIS VHF Data-link Message (Target Ship Data)
VDO	UAIS VHF Data-link Own-vessel report
* Proprietary Seetrac® Tender Tracking™ System Sentences also supported	

Table 3.4 - Target Tracking Information

Water Depth Information	
DBK	Depth Below the Keel
DBS	Depth Below the Surface
DBT	Depth Below the Transducer
DPT	Transducer Depth and Offset

Table 3.5 - Water Depth Information

Wind and Water Speed and Direction Information	
MTW	Water Temperature
MWD	Surface Wind Direction and Velocity
MWV	Wind Speed and Angle
VBW	Ground and Water Speed
VDR	Set and Drift
VHW	Water Speed and Heading
VWR	Relative Wind Speed and Angle
VWT	True/Theoretical Speed and Angle

Table 3.6 - Wind and Water Speed and Direction Information

Positioning and Tracking Information	
GGA	Global Positioning System Fix Data
GLA	LORAN-C Past Position and Time
GLF	LORAN-C Predicted or Estimated Waypoint Positions and Times
GLL	Geographic Position - Latitude/Longitude
GLP	LORAN-C Present Position and Time
GSA	GPS DOP and Active Satellites
GSV	Satellites in View
GXF	TRANSIT Predicted or Estimated Waypoint Positions and Times
GXP	TRANSIT Present Position and Time
RMA	Recommended Minimum Specific LORAN-C Data
RMC	Recommended Minimum Specific GPS/TRANSIT Data
RTE	Routes
TTM	Tracked Target Message
VTG	Course Over Ground and Ground Speed
WPT	Waypoint
ZDA	Time and Date - GPS

Table 3.7 - Positioning and Tracking Information

Supported Device Output	
AAM	Waypoint Arrival Alarm
APA	Autopilot Sentence "A"
APB	Autopilot Sentence "B"
BEC	Bearing & Distance to Waypoint - Dead Reckoning
BOD	Bearing - Origin to Destination
BPI	Bearing & Distance to Point of Interest
BWC	Bearing & Distance to Waypoint (Great Circle)
BWR	Bearing & Distance to Waypoint (Rhumb Line)
BWW	Bearing - Waypoint to Waypoint

Supported Device Output continued	
DBT	Depth Below Transducer (Sounder)
GLL	Geographic Position - Latitude/Longitude
HDG	Heading, Deviation and Variation
HDM	Magnetic Heading
HDT	True Heading
HSC	Heading Steering Command
MTW	Water Temperature (Sounder)
PBGTLAY	Distance and Time to Lay Lines (Sailing Plus Pack)
PBGTBBS	Polar Speed and Polar Performance (Sailing Plus Pack)
PBGTVMG	Best VMG (Sailing Plus Pack)
RMA	Recommended Minimum Specific LORAN-C Data
RMB	Recommended Minimum Navigation Information
RMC	Recommended Minimum Specific GPS/Transit Data
TLL	Target Lat/Lon for Targets acquired in NNS (Radar)
TTM	Tracked Target Message for Targets acquired in NNS (Radar)
VHW	Water Speed and Heading
VTG	COG/SOG
WCV	Waypoint Closure Velocity
WDC	Distance to Waypoint
WDR	Waypoint Distance, Rhumb Line
WNC	Distance - Waypoint to Waypoint
WNR	Waypoint to Waypoint Distance, Rhumb Line
WPL	Waypoint Location
XTE	Cross Track Error, Measured
XTR	Cross Track Error - Dead Reckoning
ZDA	Time & Date

Table 3.8 - Supported Device Output

Device Identifiers	
AP	Autopilot
DE	DECCA Navigation
EC	Electronic Chart Display
GP	Global Positioning System
HC	Heading Control
II	Integrated Instrument
LA	Loran A
LC	Loran C
OM	Omega Navigation System
SN	Electronic Positioning System

Table 3.9 - Autopilot Talker Identifications

B&G Format	
0	Heel
1	Boatspeed
3	Heading
10	Windspeed Apparent
11	Depth Below Surface
12	Windspeed True
13	Wind Angle Apparent
14	Wind Angle True
15	True Wind Direction
17 (RC)	COG
19 (RC)	VMC/SOG
20 (RC)	VMG
23	Leeway
26 (RC)	Latitude
27	Sea Temperature

B&G Format continued	
27 (RC)	Longitude
28 (RC)	Current Set
29 (RC)	Current Drift
30 (RC)	Timer

Table 3.10 - B&G Format

OCKAM Format	
A	Windspeed Apparent
a	Windspeed True
B	Boatspeed
b	VMG
C	Heading
c	Wind Direction
D	Wind Angle Apparent
d	Wind Angle True
F	Current Set
f	VMC/SOG
F'	Current Drift
f'	COG
G	Temperature (#1)
G'	Temperature (#2)
H	Heel
h	Leeway
o	Magnetic Variation
W	Depth Below Surface
w	Depth Below Keel
T	Time
t	Stopwatch

OCKAM Format continued	
X	Longitude
X'	Latitude

Table 3.11 - OCKAM Format

Testing the Connection

When you have connected one or more input and/or output devices to your computer, test the connections to verify that they are working correctly. Nobeltec provides a tool called "Port Test". (**Start | All Programs | Nobeltec | Port Test**). There are 4 links in Port Test that are used to attempt to connect to COM Ports 1-4 using Window's HyperTerminal program.

Since many computers have more than 4 COM ports (using a Serial-to-USB adapter), use the **Tools | Options | Ports Configure: View Data** button to verify which data is being received.

How to Log Inputs and Outputs

Sometimes it may be necessary to log a large amount of data so that it can be manually analyzed for problems.

1. Click on **Tools | Options | Ports Configure**
2. Click the **Log All Input** check box or the **Log All Output** check box

Data is saved in a file named **comx-in.log** (where **x** is a number corresponding to the COM port used), located in **C:\Program Files\Nobeltec\Visual Series**.

4 Basic Screens

This chapter provides an overview of the Nobeltec Navigation Software screens, features and dialogs, along with basic feature functionality.

Nobeltec provides you with two options for onscreen viewing:

PlanView. Nobeltec's standard User interface. Windows-style, multiple-paned view of navigation charts, ToolBars, etc.

NavView (Admiral Only). NavView is an alternative User interface that is ideal for touchscreens and multiple monitor environments.

PlanView Primary Screen Elements

Title Bar

The Title Bar (**Figure 4.1**) is the topmost part of the PlanView screen. Following the Nobeltec name is text containing the active chart number and native scale. The first bracket pair shows the zoom level and the apparent scale. The second bracket pair contains depth units and the chart name.

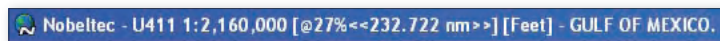


Figure 4.1 - Title Bar

Main Menu

Nobeltec in PlanView functions like most Windows™ applications, using drop-down menus that provide various options. This row of drop-down menus is referred to as the Main Menu (**Figure 4.2**).

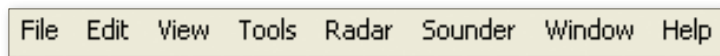


Figure 4.2 - Main Menu

ToolBars

ToolBars are used to shortcut your connection to various functions within the program. In order to select which ToolBars and ToolBar buttons to display, select **Tools | ToolBars** from the main menu.



Figure 4.3 - ToolBar Buttons

ToolBars, once displayed, can be picked up, dragged and dropped elsewhere onscreen to provide you with the most customized display possible. You can also use the ToolBar Options window to save ToolBar settings, allowing you to quickly switch between several various ToolBar configurations.

See **Chapter 16 - Customizing Nobeltec** for a full list of available ToolBars.



WARNING: Including too many ToolBars can clutter your screen and reduce your ability to quickly locate the appropriate tool for any given situation.

Console Display

Console Panels display navigation information such as Lat/Lon, speed over ground, speed over water, etc. See **Chapter 16 - Customizing Nobeltec**. Console panels can be resized and repositioned. You can also change the colors and size of the fonts to change the emphasis of certain panels.

Items to display on the Console are selected using **Tools | Options | Console**.

Chart Window Pane

This is the window that displays the chart, your vessel and objects such as marks and routes. Nobeltec Navigation Software ships with low-resolution planning/overview charts. To view harbor-level detail, you will need to purchase and install Passport charts.

The NavBar

The NavBar is another available tool that can help you use common features of Nobeltec Navigation Software quickly and easily. The NavBar displays along the bottom of the PlanView screen and contains a series of tabs containing tools and data for some of the most frequently used or highest-priority options available, such as Man Overboard, Targets, Weather, etc.

Info Tab

The Info Tab contains three information panels: **Cursor position**, giving you the Lat/Lon of the location your mouse is hovering over and the RNG and BRG to boat from the cursor location; **Cursor Tooltip**, which displays the static information about the last object your mouse hovered over in the Chart window pane; **Selected Object/Last Clicked Location**, which gives you the Name, Lat/Lon (if applicable) and other information about the last object you left-clicked on in the Chart window pane.

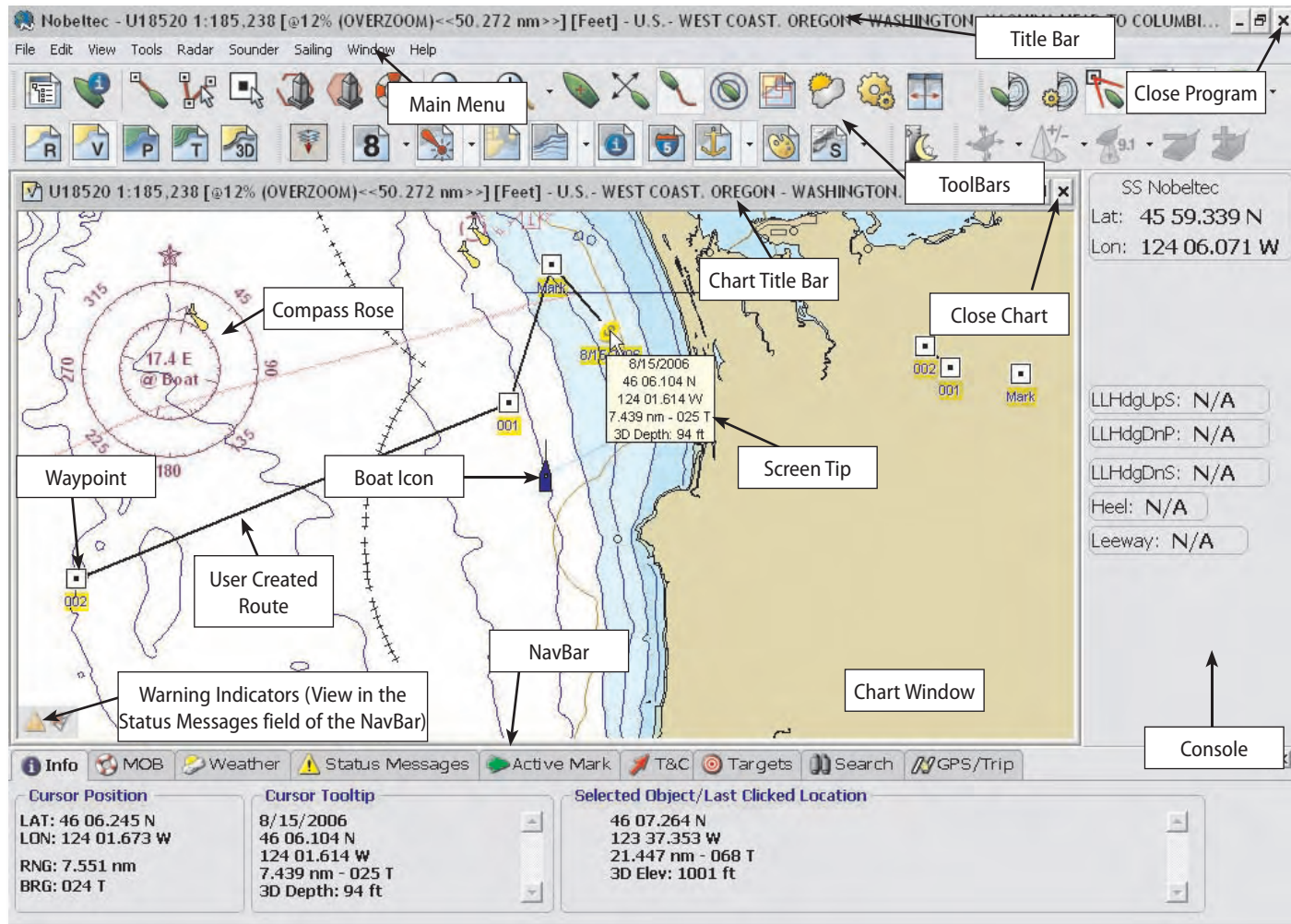


Figure 4.4 - PlanView Screen Elements

MOB Tab

Use the MOB (Man Overboard) Tab of the NavBar to immediately drop a Man Overboard icon on the Chart window pane and start tracking the location of that object.

The MOB tab allows you to create a MOB icon, focus the chart on the MOB icon, clear the MOB icon or proceed to another MOB notice. Additionally, dynamic and static information about the MOB, such as Lat/Lon, distance from boat, distance from cursor and duration of the MOB alarm will display.



NOTE: You can also use the <F4> Hot Key to instantly create a Man Overboard icon and alarm while underway.

Weather Tab

The Weather Tab on the NavBar is where you can control certain features of Weather display, depending on the Weather Provider you selected from **Tools | Options | Weather**. Content of this tab changes depending on the provider selected. See **Chapter 13 - Weather & Wind** for more details about Weather.

Status Messages Tab

This tab contains warning messages and information about your charts, hardware connectivity, network, etc. Status Messages can be exported to a log file to track specific events.



NOTE: Target threats such as ARPA/MARPA and AIS targets, when detected, are sent to the Targets Tab, not the Status Messages panel.

Active Mark Tab

This tab displays all the pertinent information about the active Mark or Waypoint in a route that your vessel is currently steering toward. Fields available include Range and Bearing to Mark, SOG, COG, TTG, VMG-Wpt, XTE, ETA, HDG, CTS and the Time to Go (TTG) to other Marks in the Route.



NOTE: You must have an active Mark or Route to display data in this tab.

T&C (Tides & Currents) Tab

The T&C Tab displays information that comes from the Tides & Currents standalone program. Tidal and current information that relates to your vessel, such as tide location and time, present tidal information, daily high and low, current location, current information at boat and daily ebb and flood data are available.

Targets Tab

Use the Targets Tab on the PlanView NavBar to view additional information about a specific tracked target. Select from available Targets using the drop-down menu next to the Target name display; **Find** an available Target; **Filter** AIS Targets from being displayed; and **Show** or **Hide** Targets from displaying.

Fields available include CPA, TCPA, RNG, BRG, COG, SOG, LAT and LON.

Search Tab

You can search for any object using the text-based search field in the Search Tab of the NavBar. The ability to search text allows you to plot courses with greater ease. You can quickly locate points of interest using Nobeltec Navigation Software's efficient search engine. The Search tool intelligently finds matches to the text you provide, such as tide and current stations not immediately seen on your charts. Nobeltec's Place / Name Search feature is particularly robust, allowing you to search all vector charts quickly, returning a list of all charts containing the data you requested.

The searchable text field allows you to use Hot Keys, such as <Ctrl+C> or <Ctrl+Insert> to copy text; <Ctrl+V> or <Shift+Insert> to paste text; <Ctrl+Z> or <Alt+Back> to undo paste of text; <Ctrl+X> to cut text, etc.

Select an item from the returned list and the corresponding chart will immediately open, with the requested location highlighted.

GPS/Trip Tab

The GPS/Trip Tab on the NavBar displays information about GPS data, including odometer readings that provide specific numbers, such as distance travelled, to help you assess the progress of your trip. Information, fields and buttons on this tab include:

- **GPS Signal Strength.** This diagram contains a relative sky map containing the approximate location of available satellites. Next to the diagram, up to sixteen GPS satellites can be displayed as white bars with the height of the bar representing the strength of signal. If the bar is labelled W, it is a WAAS (Wide Area Augmentation System) satellite. The relative height of the bars is displayed in front of a graph, indicating 0%, 25%, 50%, 75% or 100% signal strength.
- **GPS drop-down list.** This list contains all GPS units that are currently broadcasting strength of signal information and the COM Ports to which they are connected. The box is "grayed out" if no GPS signal strength information is available.

- **Lat.** Your vessel's latitude location.
- **Lon.** Your vessel's longitude location.
- **GPS Status.** This will show the status of received GPS information. Options are **No GPS**, **GPS OK** and **WAAS OK**.
- **Accuracy.** Range 0.0-9.9. A lower number means greater accuracy. This data comes from transmitted Horizontal Dilution of Precision (HDOP) values (GSA NMEA sentence).
- **Resolution.** Also called the 1-Sigma. This is the calculated accuracy of your precise location as provided by your GPS. This data comes from transmitted Horizontal Dilution of Precision (HDOP) values provided by satellites. A greater number of available satellites transmitting data means a higher degree of resolution.
- **Odometer.** This is the total distance travelled while the Nobeltec Navigation Software has been running.
- **Trip Number** drop-down list. This drop-down list contains **Trip 1** and **Trip 2** so you can track readings for each route.
- **Reset.** Click this button to reset all of the selected trip's fields to zero.
- **Time Set:** The date and time that the selected Trip started.
- **Duration.** Hours, minutes and seconds the selected Trip has lasted.
- **Avg Speed.** Average speed of your boat during the selected Trip.
- **Min. Speed.** If the vessel is moving slower than 0.2 knots (Kts), distance travelled is not calculated.

Chart Management

Modifying Passport Vector Charts

Customize the appearance of Passport charts by turning on and off data layers. Click on the corresponding Passport ToolBar button to change the displayed data (**Figure 4.5**).



Figure 4.5 - Passport Options ToolBar

Displaying Different Chart Types

The chart window pane contains any type of chart data installed, including raster, vector, photo, topographic and 3D. To display different chart data types, click on the ToolBar button corresponding to the data you wish to see.

The Chart Table

Use the Chart Table to open charts and change view settings of various chart objects, install and uninstall charts and to select charts shown in the quilted chart image. To open the Chart Table, click on the **File | Chart Table** menu, click the Chart Table button on the default ToolBar or the **<Ctrl+O>** Hot Key.

Opening Charts

You can open and locate charts by clicking the **Open** Tab or by zooming in on an area of interest. To locate an object, use the Objects Tab **Search** feature.

Chart Objects

Use the **Objects** Tab to control the display of various objects in the chart windows, including user created objects, place names, marine facilities, etc.


To Show or Hide Objects On the Screen.

1. Click **File | Chart Table | Objects**.
2. Click the check box next to the object type for which you wish change settings. If the object has a check-mark in the check box, it will display.
3. Click **Done** when you are finished.

Creating New Folders

1. Click **File | Chart Table | Objects**
2. Click the **New Folder** button
3. Name the new folder

Dragging Objects Into a Folder

1. Click **File | Chart Table | Objects**
2. Highlight the object(s) to move
3. Click and drag the object(s) into the folder. The icon will momentarily change into a  until you place it over the desired folder

Click here to Open charts. The first folder provides a list of charts for your current position. Click the + sign for a complete list of all charts

Click here to Install charts and Unlock Codes. Some chart types may originate from sources other than the Nobeltec Navigation program

Click here to Uninstall charts. Use this feature to remove charts you do not intend to use and to save disc space

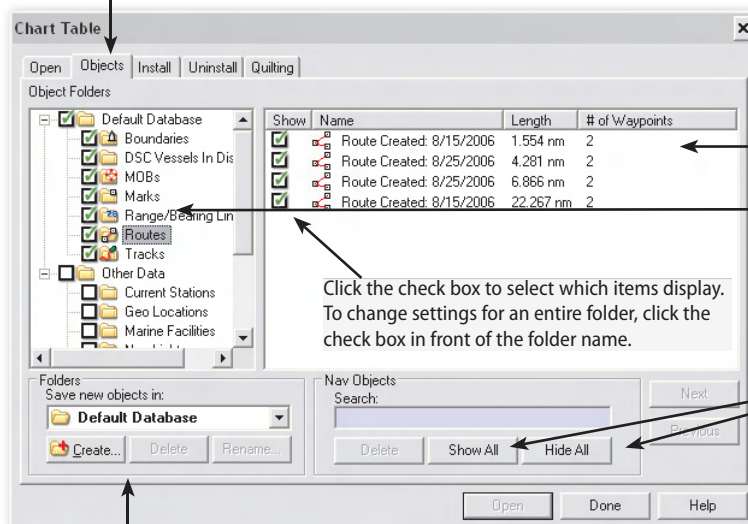
Click here to Add or Remove charts from Quilting in circumstances where the charts are incompatible or redundant

Details about a selected chart will display here. Use the scrollbar on the right to reveal additional information

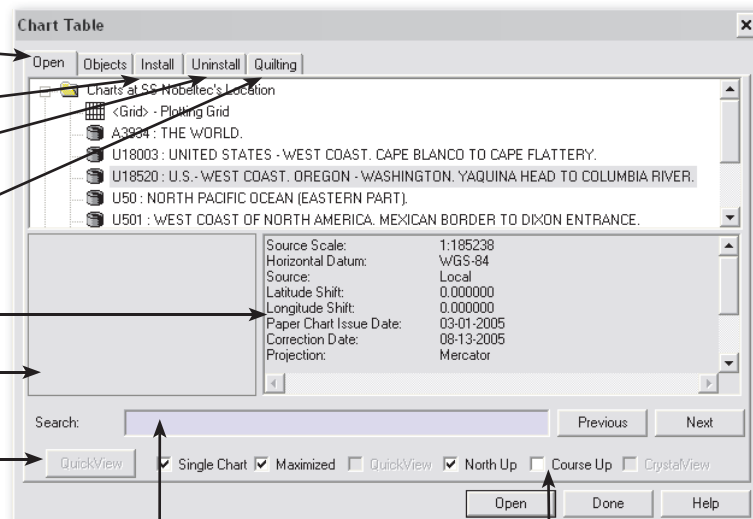
The QuickView Chart Preview window

The QuickView button displays a small overview of the currently highlighted chart in the QuickView Chart Preview window

Click on the Objects Tab to change view settings and to create new object folders



Use the Folders section to manage object data storage



Type a chart name in the Search field and use the Previous and Next buttons to locate the name or similar names

These check-boxes control how the chart will display when you open it

This list contains objects in the default database folder

Objects are grouped in folders containing similar items

Click the check box to select which items display. To change settings for an entire folder, click the check box in front of the folder name.

These commands change the settings for all objects in the folder

Figure 4.6 - Chart Table and Objects Tab

Install

Use the **Install** Tab to install Nobeltec Passport charts, supplemental data, Plus Packs and other supplemental features, as well as 3rd party charts compatible with Nobeltec Navigation Software (see **Chapter 2 - Installation** for more information).

Uninstall

You may use the chart table to uninstall charts, supplemental data and plus packs if you need to free up disc space on your computer. Permit codes for Passport World Charts are retained to reinstall the regions if/when necessary.

Chart Quilting

Quilting is the seamless connection of one chart to another, unnoticeable onscreen (e.g. the charts are "quilted" together"). Nobeltec defaults to quilting charts of the same resolution and quality whenever possible. Use this Tab to choose which chart to "quilt" with the current chart onscreen from the selection of multiple charts.

The PlanBook

The PlanBook is used to make precise estimates on arrival times, fuel consumption and other key issues that contribute to planning long trips. You can also use the PlanBook to organize data such as routes, marks, etc.

The PlanBook (**Figure 4.7**) can be displayed next to a chart window. See **Chapter 8 - PlanBook** for more information on using the PlanBook.

Displaying the PlanBook

From the main menu, click on **Tools | PlanBook** or the PlanBook ToolBar. Features of the PlanBook include:

- **Import/Export:** Used to access the Import/Export dialog.
- **Show All/Hide All:** Used to show or hide all objects.
- **Properties:** Displays the properties window for the selected object.
- **Goto:** Highlight an object to open a new chart window centered on this location.
- **Delete:** This will delete the selected object.

Routes

After you have created a route on the charts, use the Routes Tab of the PlanBook to set the speed of each route leg. This information, combined with Currents information, is how arrival time at each waypoint is calculated.

The Routes Tab has two display modes: Route List and Route Details, accessible by clicking on the tabs in the center section of the Routes Tab.

Selected routes are highlighted in yellow on the Routes Tab and Marks are highlighted in yellow on the Route Detail Tab. Start and End waypoints are shown in **green** and **red**; Layover waypoints are shown in **blue**.

Layover waypoints are used in the Layover Time column to account for stop-over time. To calculate, input the number of hours until planned departure.

Marks

Use the Marks Tab to make calculations between the boat and a single point.

Tracks

This Tab displays current plotting and previous tracks. Use the **Goto** function to find old tracks or convert tracks into routes. The Tracks Tab is also where you can delete or edit tracks from previous voyages.

Boundaries

Use this Tab to view a list of boundary objects. You can delete and import or export from this Tab as well.

The PlanBook displays the details about specific sets of data. It makes calculations based on user-defined criteria. Input departure time and speed for a route and it will display arrival times for each waypoint

Displays a summary of the route selected from the list

Click here to open the ETA Calculator

Select the Routes, Marks, Tracks or Boundaries Tabs to edit these data types

Route Options are shown here

Secondary Tab displays Route Details

The Route List displays all current routes

The screenshot shows the PlanBook application window. At the top, there are tabs for 'Routes', 'Marks', 'Tracks', and 'Boundaries'. The 'Routes' tab is active. Below the tabs, there's a 'Route Options' section with fields for 'Departure Date/Time' (12/29/2006, 12:39:55 PM), 'Origin' (SS Nobeltec), and 'Vessel SOG' (0.0 kts). There are also buttons for 'Select New Origin...', 'Apply to All Legs', and 'Set Fuel Rates...'. To the right of the options is a 'Route Summary' box showing details for a route with 2 waypoints, including distances and times. Below the options is a 'Route List' table with 7 routes. The first route is highlighted. To the right of the list is a 'Route Detail' box for the selected route, showing the same summary information. At the bottom, there's a toolbar with buttons for 'New...', 'Reverse', 'Copy', 'Import...', 'Export...', 'Properties...', 'Delete', and 'Print...'. There are also 'Show All' and 'Hide All' buttons, and a 'Default Database' dropdown.

Show	Name	Detail
<input checked="" type="checkbox"/>	Route Created: 8/15/2006	2 waypoints, 22.266 nm
<input checked="" type="checkbox"/>	Route Created: 8/15/2006	2 waypoints, 11.452 nm
<input checked="" type="checkbox"/>	Route Created: 8/25/2006	2 waypoints, 6.866 nm
<input checked="" type="checkbox"/>	Route Created: 8/25/2006	3 waypoints, 10.766 nm
<input checked="" type="checkbox"/>	Route Created: 8/30/2006	2 waypoints, 0.821 nm
<input checked="" type="checkbox"/>	Route Created: 12/27/2006	2 waypoints, 0.425 nm
<input checked="" type="checkbox"/>	Route Created: 12/28/2006	2 waypoints, 22.266 nm

Creates a New Route

Reverses the order of the waypoints

Click here to make a Copy of the route

Click here to Export the route

Click here to view the Properties of a route

Click here to Delete the route.

Click here to Import a route.

The number of waypoints will be shown in the Detail column

Figure 4.7 - PlanBook

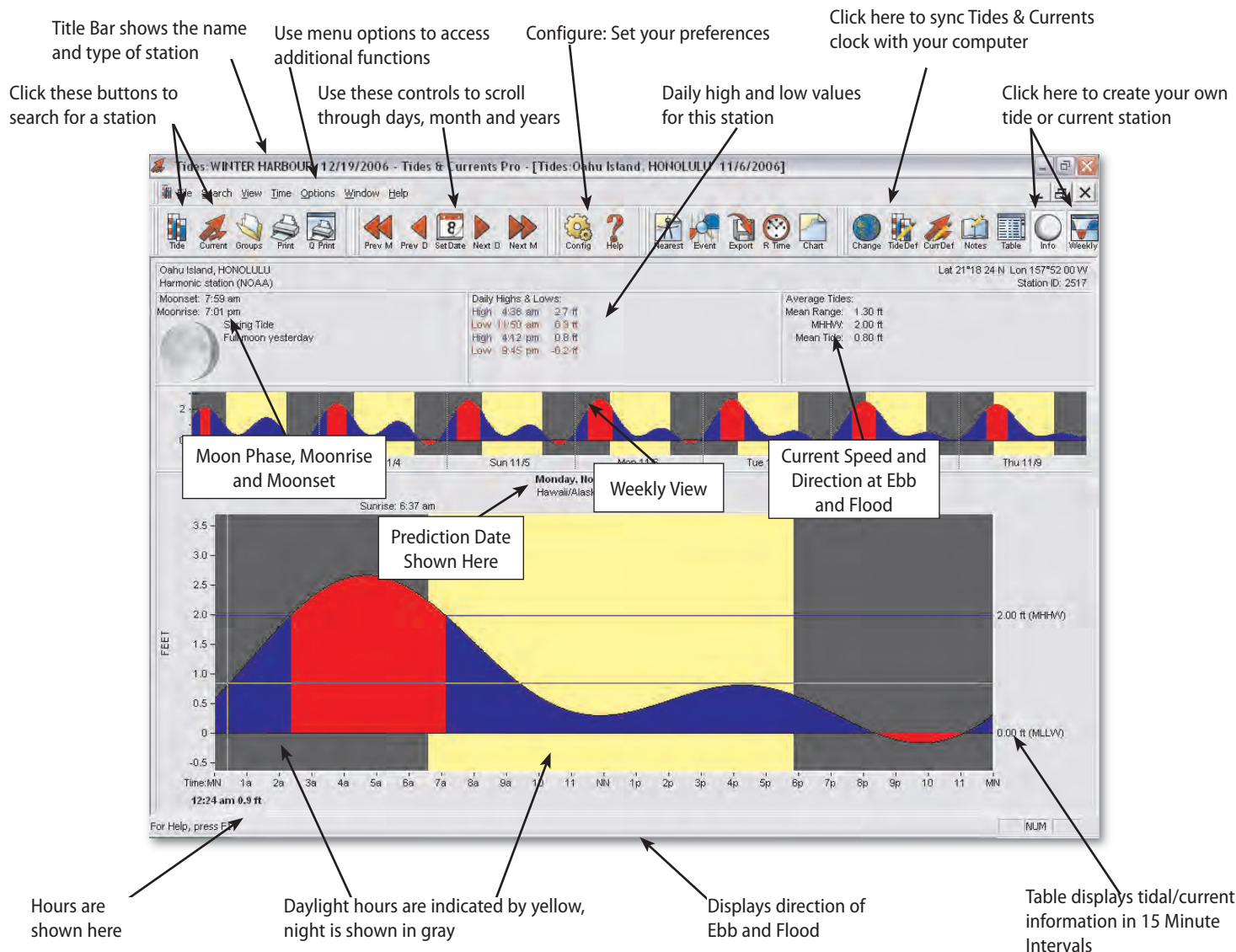


Figure 4.8 - Tides and Currents Window

Tides and Currents

Tides & Currents (**Figure 4.8**) is an integrated product linked directly into Nobeltec Navigation Software and used for all aspects of tide and current planning. Within the software, information displays directly on top of your chart. Tides & Currents comes standard with North American tidal data or you can purchase simplified global tidal data from Nobeltec.

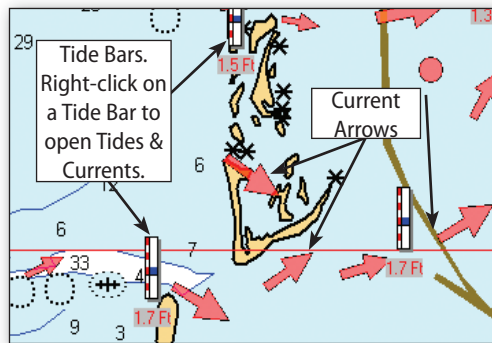


Figure 4.9 - Tides & Currents on a Chart

Tides & Currents contains nearly every conceivable tidal and current projection feature in an easy-to-use format, including:

- **Event Searching:** minimum and maximum values in a range.

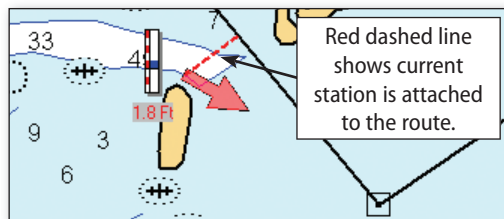


Figure 4.10 - A Current Station Attached to a Route

- **Custom Stations:** Define and create your own custom stations based on stations that are nearby.
- **Calendars:** Print customized weekly and monthly calendars.

Use the Tides and Currents ToolBar to set date and time for all projections. You can also sync Tide and Current display to the computer's internal clock.

To open Tides and Currents:

1. Turn on current arrows by clicking on the **Current Arrow** ToolBar icon or right-clicking on the chart and selecting **Tides and Currents | Current Arrows** from the pop-up menu.
2. Right-click on the tide or current station for which you would like to view a graph.
3. From the pop-up menu, select **View In Tides & Currents**.
4. The Tides & Currents program will open and you should see a graph that covers a 24-hour period.

ETA Calculator

You can attach tide and current stations to a route and then use the ETA Calculator to help you make better ETA, ETD and speed calculations. Access the calculator by right-clicking on a route and clicking ETA Calculator. See **Chapter 17 - On The Water** for more information.

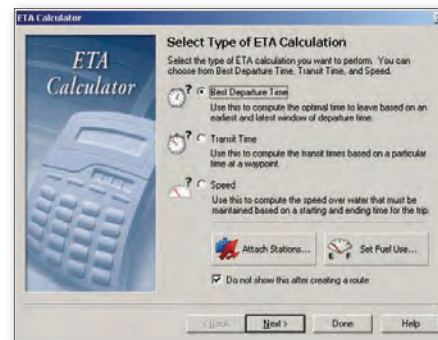


Figure 4.11 - The ETA Calculator

Click the 3D button to open a 3D window. This command automatically splits the screen and creates a 3D window covering half the workspace

When the 3D window is selected many of the main ToolBar buttons are disabled because they do not function in the 3D window

3D Visible Range Marker shows the size of the 3D window on the 2D chart. As you zoom in or out on the 3D Navigator, this box will change size accordingly

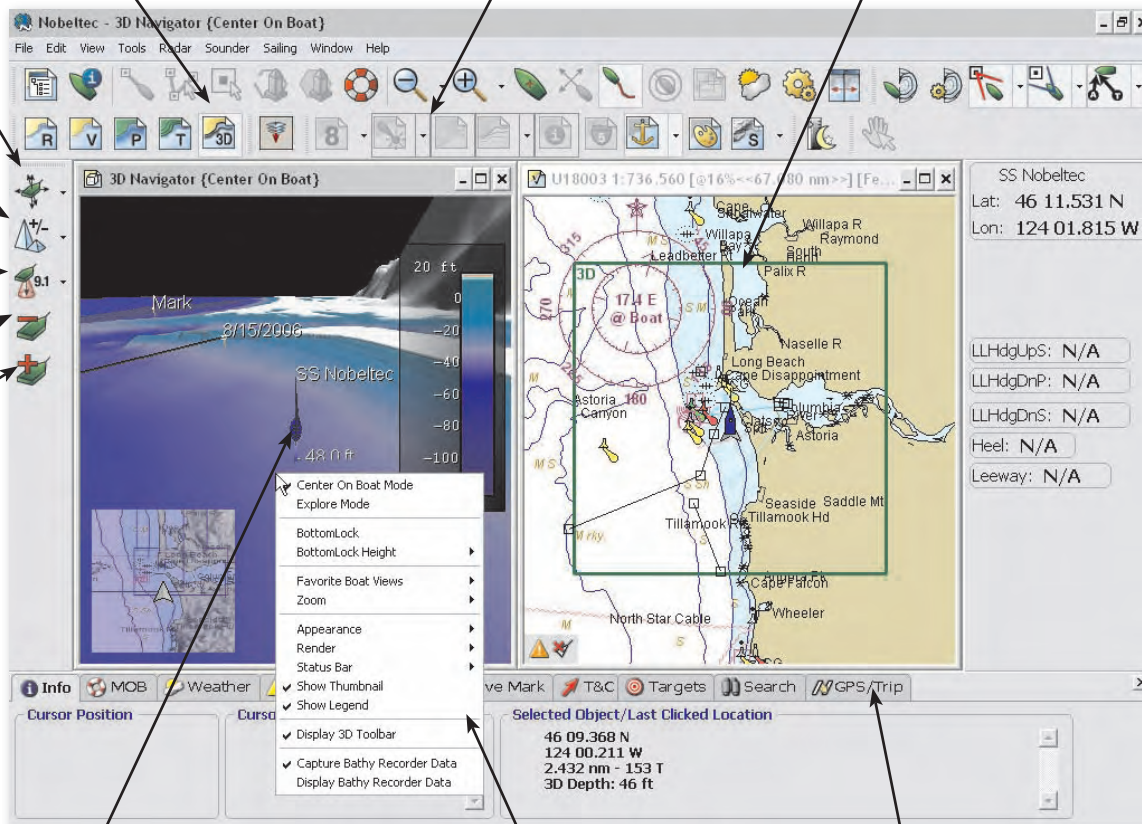
Change 3D Mode

Change 3D Exaggeration

Toggle 3D Depth Indicator

Decrease 3D Boat Scale

Increase 3D Boat Scale



Boat Icon is shown in the center of the screen in Center on Boat mode

Right mouse click on the 3D window to access additional commands

Vector chart window

Figure 4.12 - PlanView 3D Navigator

3D Navigator

Nobeltec's exclusive 3D Navigator allows you to view the ocean floor and land in clean, representational 3D graphics. Familiarize yourself with the navigational controls prior to using this feature. You can also use the mouse, keyboard or computer joystick to control movement in the 3D window.

Visual Navigation Suite and Admiral include low-resolution bathymetric charts, but for frequent 3D navigational viewing, Jeppesen Marine recommends purchasing Passport Deluxe charts. Deluxe regions include high-resolution bathymetric charts, which make 3D viewing easier and more enjoyable.

See **Chapter 12 - 3D Navigator** for more information about 3D navigation.



WARNING: 3D Passport bathymetric charts are navigational aids. While Jeppesen Marine commits to deliver the best elevation/depth data possible, errors in source material, data processing and 3D presentation may occur. It is advisable to always have official navigation charts as the primary means of navigation.

3D Navigator Modes

When a 3D chart is open, you may keep the boat centered (**Figure 4.135**) or enter Explore Mode (**Figure 4.14**), which allows you to view all parts of the chart regardless of where the boat is. To switch between modes, right-click on the bathymetric chart and select the mode you want to work in.

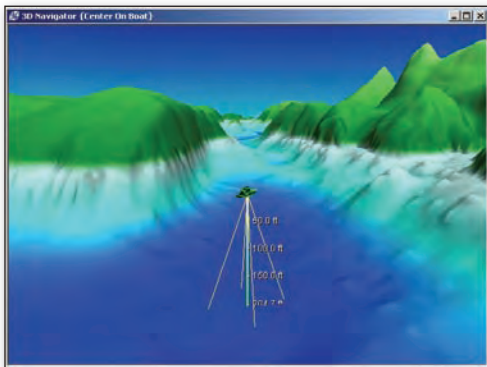


Figure 4.13 - Center On Boat Mode

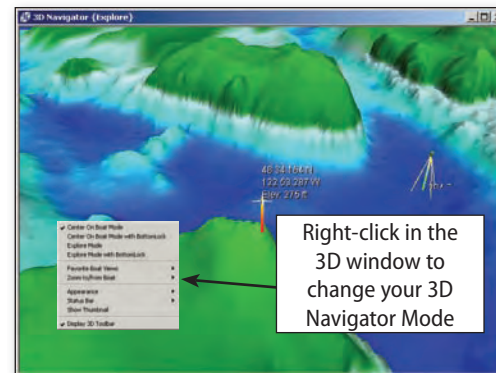


Figure 4.14 - Explore Mode

3D Navigator Controls on the ToolBar

To access 3D Navigator controls on the ToolBar, click the 3D button. This will bring up the 3D Navigator tools on the ToolBar (**Figure 4.15**).

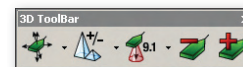


Figure 4.15 - 3D Navigator ToolBar

Wind and Weather

Weather data, wind and sea state can be displayed directly on top of your charts to aid navigation decisions. Weather is provided in **GRIB** or **Nobeltec** format. You can also select to display **SkyMate** weather during your installation of Nobeltec Navigation Software, provided that you have SkyMate satellite hardware installed.

Additionally, **XM/WxWorx Weather** is available as a Plus Pack to NNS, purchasable from a Nobeltec product dealer. See **Chapter 13 - Weather & Wind** for a full description of all Wind and Weather features.

Select a Weather Provider from **Tools | Options | Weather Tab**. Changing Weather Providers requires you to restart Nobeltec Navigation Software.



NOTE: Weather data will not display over 3D charts.

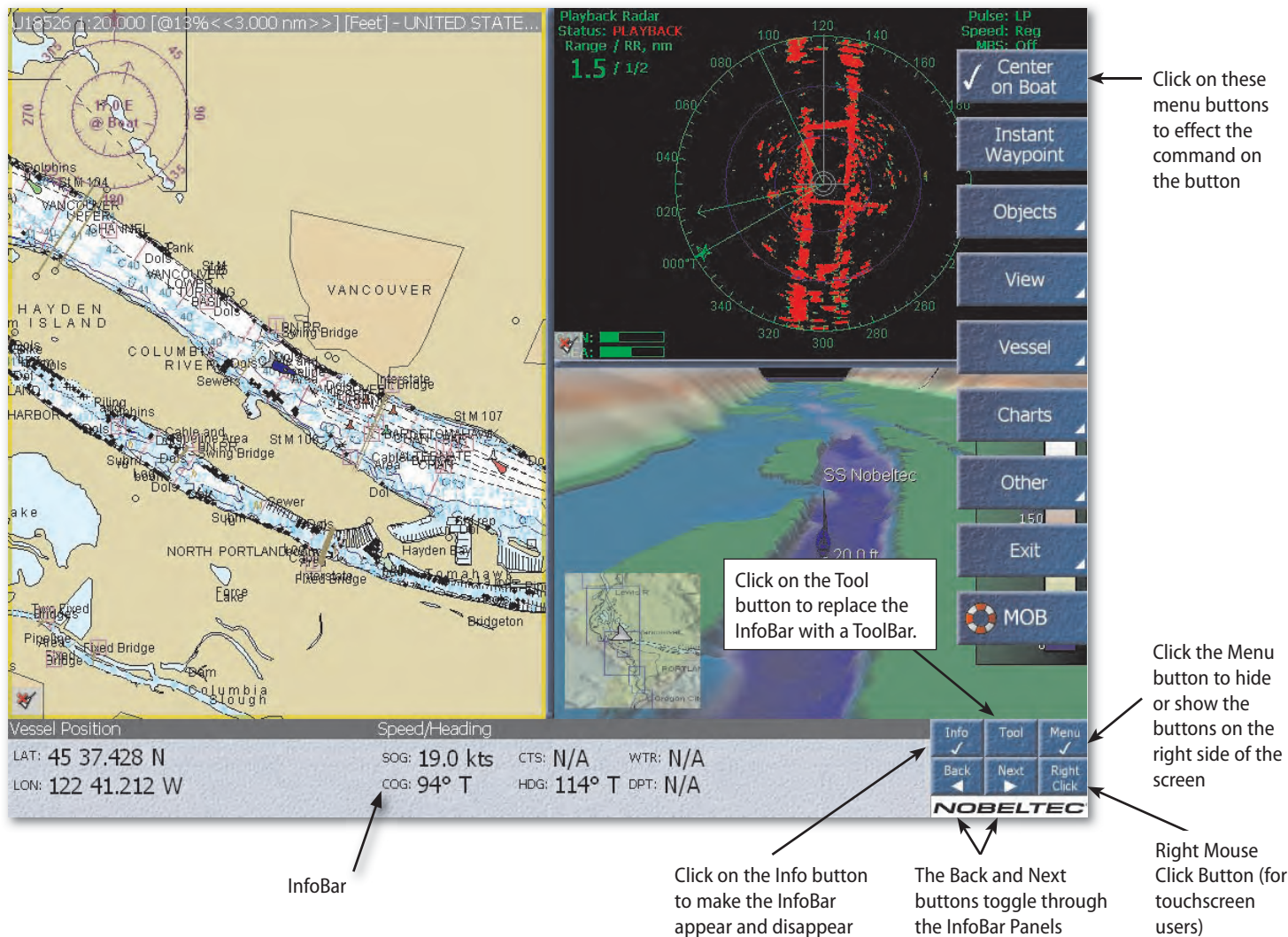


Figure 4.16 - NavView Screen Elements

NavInfo Window

The NavInfo window is one of the tools Nobeltec Navigation Software provides for you to see specific sensor-based data in an at-a-glance format. Window layout and subpanel content are customizable, allowing you to display the data and calculated values of your choice.

To open a **NavInfo** window in **PlanView**, click **Window | NavInfo Window**.

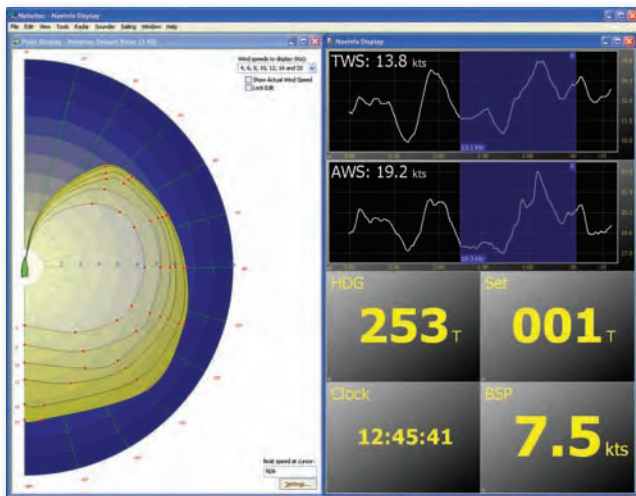


Figure 4.17 - NavInfo Window with Polar Display

The NavInfo window is sub-divided into content-specific subpanels. Each subpanel contains one type of information, such as Course Over Ground, Rate of Turn, etc, and can be customized as to data content, data layout, such as displaying numeric values or histograms, colors, update frequency, and can even be set up to contain a background graphic (jpg or bmp format).

NOTE: You must have connected the appropriate hardware to display specific data types in the NavInfo subpanels. For example, if you wish to display water temperature, you must have connected a temperature gauge to your computer and set up Nobeltec Navigation Software to receive data from that device.

To Customize the NavInfo Window

1. Open a NavInfo window (**Window | NavInfo Window**).

2. Right-click on the NavInfo window and select **Customize Layout** from the pop-up menu. The NavInfo Wizard will open.
3. Choose a vertical or horizontal orientation.
4. Select the type of layout you want to assign to the window from the available configurations. When you select a layout, the window closes and the NavInfo window automatically updates.

To Customize a NavInfo Subpanel

1. Right-click on any NavInfo window subpanel and select **Customize Subpanel** from the pop-up menu. The **NavInfo Customize Subpanel** window opens. Update the contents of the selected subpanel from this window.
2. There are two main customizable components to a subpanel **Display Settings** and **Data Types**.
 - Display Settings include **Background Start Color**, **Background End Color**, **Font Color**, **Histogram Line Color**, **Update Frequency** (in seconds) and **Background Image** (bmp or jpg format).
 - Data Types include all possible NavInfo data such as COG, SOG, wind angles, depth, etc.
3. If a data type has not been assigned to a NavInfo Subpanel, the panel appears with the selected background colors only.
4. Click **OK** when you have finished customizing the subpanel.

NavView (Admiral Only)



Exclusive to Admiral, NavView offers many of the same features found in Nobeltec PlanView (Nobeltec's standard user interface), without relying on Windows-style screens, ToolBars, etc. While NavView only works in full screen mode, you can display multiple windows in that mode.

To enter NavView, press the NavView ToolBar button, the **<F9>** Hot Key or click **Window | Enter NavView**.

See **Chapter 18 - NavView** for a full description of NavView functionality.

Primary Screen Elements

NavView Menu

NavView menu items are similar to those of PlanView. The main menu structure is described here (see **Figure 4.16** for button location).

- **Center on Boat:** Click this button to center perspective on vessel
- **Instant Waypoint:** Click on this button and then on the screen to create a waypoint instantly
- **Objects:** Click on this button, then on the sub-menu option and then onscreen to create one of these objects. Sub-menu options are: Route, Mark, Event Mark, Range Bearing Line (RBL), Line Boundary, Circle Boundary, Annotation
- **View:** Sub-menu options are: Zoom in, Zoom Out, View History, View Newer Data, Previous View, Next View and View Manager (monitor configuration window)
- **Vessel:** Sub-menu options are: Auto-Scroll (Boat, Predictor, Max Ahead, None), Chart Orientation (Course Up, Leg Up, North Up), Tracking, Range Circle, Boat Properties
- **Charts:** Sub-menu options are: Chart Table, Outlines, Quilting, Tides (displays the tide stations), Currents
- **Other:** Sub-menu options are: GPS Transfer, Options (**Tools | Options** menu), Colors (Day, Twilight or Night) and Nav Objects (Import, Export, Save All)
- **Exit:** Return to PlanView or close Nobeltec Navigation Software
- **MOB:** Sets Man Overboard mark at the vessel
- **Info:** Reveals or hides information ToolBar at the bottom of NavView
- **Tool:** Shows ToolBar buttons (similar to default ToolBar in PlanView)
- **Menu:** Reveals or hides right-hand menu
- **Right-click:** Next action on screen is a right mouse click, rather than left mouse click. Used to reveal Right Mouse Menus.

NavView ToolBar

The NavView ToolBar at the bottom right corner of the screen contains six blue buttons. This ToolBar is designed to change settings unavailable from the NavView menu. Click **Tool** to see available ToolBar options. If you have additional Nobeltec products, such as an InSight Radar 2™, click **Next** to display additional ToolBar icons.

NavView InfoBar

The InfoBar is located along the bottom of the NavView screen. You can hide the InfoBar by clicking the **Info** button in the NavView ToolBar.

The InfoBar provides information about your vessel's current location including Vessel Position, Screen Cursor position, Mark data, System Time,

status of peripheral devices, Tides & Currents, Targets, Status Messages and, if you have the sensors connected, GPS, Water Temperature and Depth. Click **Next** or **Back** to scroll through the available InfoBars.

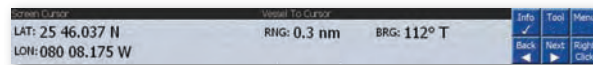


Figure 4.18 - InfoBar and ToolBar

To Use NavView

1. Use the NavView menu buttons to navigate through menu options.
2. Some menu buttons will lead to secondary menu buttons.
3. Click **Back** from any sub-menu to return to the main menu.

To Return to PlanView

- Click **Back** from any sub-menu, then click **Exit | To PlanView**.
- Press **<F9>**.

View Manager

View Manager features are covered in greater detail in **Chapter 18 - NavView**.

View Manager controls the how NavView content is displayed. Each monitor connected to Admiral can display a single type of content or be divided into window panes. View Manager can help you create new screen layouts containing multiple window panes. For example, if you have a single monitor and wish to see the 3D Navigator, Radar and a Chart on a single screen, View Manager helps you to set your view to this configuration.

Save multiple layouts for each monitor and quickly progress through them by clicking **<F6>** or reverse-toggle by clicking **<Shift+F6>**.

Follow the instructions below to create or edit NavView screen layouts.

To Configure Views and Layouts in NavView

1. Click **View** from the main menu.
2. Click **View Manager**.
3. If there are multiple monitors, select to enable/disable monitors then click on a monitor to view the existing layout.
4. **Select and Configure Layouts:** Click Edit to edit the existing layout or create a new layout.

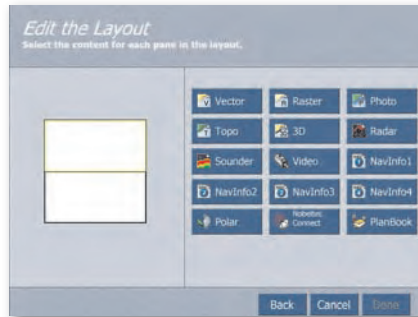


Figure 4.19 - Edit the Layout

5. **Select a Layout:** Select a layout consisting of one to four panes.
6. **Edit the Layout:** Selected pane is designated by a yellow border. As you click on a window type (Vector, Photo, 3D, Sounder, NavInfo (1-4), Polar, Raster, Topographic, Radar, Video, Nobeltec Connect) the selected pane will automatically proceed to the next pane.
7. Click **Done** when finished.
8. Select the layout you created in the View Manager to display it.

Right-Click Mouse Menus

Most screen objects have right-click mouse pop-up menus that provide tools specific to that object. Right mouse menus are available for items such as marks, routes, waypoints, the boat icon, ToolBars, console and charts. Use the **<Application Key>** (keyboard right-side next to **<Ctrl>**), if your keyboard is so equipped, to open the right-click menu.

5 Charts and Data

Types of Charts

VECTOR CHARTS are multilayered informational charts that are easy-to-read and structured for an adjustable layout.

RASTER CHARTS are a facsimile of a paper chart, where text is embedded in the image. Resizing or rotating raster charts will result in a text distortion.

AERIAL PHOTOGRAPHY are geo-referenced images that can be viewed like a navigation chart and used as additional aids to navigation.

TOPO MAPS are USGS Topographic Maps for the United States. They are raster scanned, geo-referenced and can be used like a navigation chart.

3D or BATHYMETRIC CHARTS are elevation models of the surface of the Earth. Bathymetric (sea floor topographic) charts are grid based charts that Nobeltec interprets and renders in 3D.

Chart Scales

Chart scales are expressed as a percentage of original chart size or to scale. You may zoom in or out either as a percentage of the area or in something called Apparent Scale (AS). AS is the scale visible at a given zoom level. For example, if a chart you are viewing at 100% has a natural scale of 1:10,000, AS remains 1:10,000 because your view is a 1:1 ratio. If you zoom out to 50%, AS becomes 1:20,000 because 1" onscreen is now double the mapped area.

Chart Type Controls

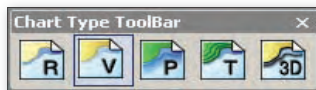


Figure 5.1 - Chart Type Selection ToolBar

When chart data is installed you can switch between different types by clicking the Chart Type ToolBar (Figure 5.1).

To close all charts and windows, use the **<Ctrl+Shift+F4>** Hot Key.

Depth Units

Change depth units on the Passport charts to display fathoms, feet or meters.

To Change Depth Units

1. Click Tools | Options | Units.
2. Choose the depth units you wish to display.

The Power of Nobeltec Passport

Passport Options ToolBar

This ToolBar controls the data that you wish to display.

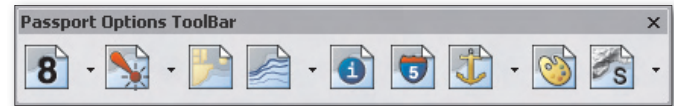


Figure 5.2 - Passport Options ToolBar



Soundings Display. Used to "declutter" soundings - decluttering merges similar depth soundings from quilted charts, which makes the charts more readable. The **<S>** Hot Key toggles Soundings on and off.

To Declutter depth soundings:

1. Click the down arrow to the right of the Soundings display button
2. Click De-clutter



WARNING: Decluttering merges some soundings. Use with Caution.



Lights and Buoys Display Levels. Changes how lights are viewed.

Click the down arrow to reveal options:

- **Nav Aids Off.** Removes all lights, buoys and markers from the charts.
- **Marker Only.** Turns on navigation lights and graphical buoy icons but not their names or their light and sound characteristics.
- **Marker and Name.** Turns on navigation lights and graphical buoy icons as well as their name, light and sound characteristics.



Figure 5.3 - Sector Lights

- **Sector Lights - Off.** Turns off all Sector Lights.
- **Sector Lights - Visible From Cursor.** Only shows Sector Lights that are visible from the cursor's position on the chart.
- **Sector Lights - Visible From Vessel.** Only shows Sector Lights that are visible from the vessel's position on the chart.
- **Sectors Lights - All Visible.** Turns on all Sector Lights.
- **Shade Sector Lights.** Fills Sector Light quadrants with color.
- **Display ECDIS Symbols.** Displays ECDIS chart markings and symbols.
- **Display NOAA Symbols.** Displays NOAA chart markings and symbols.

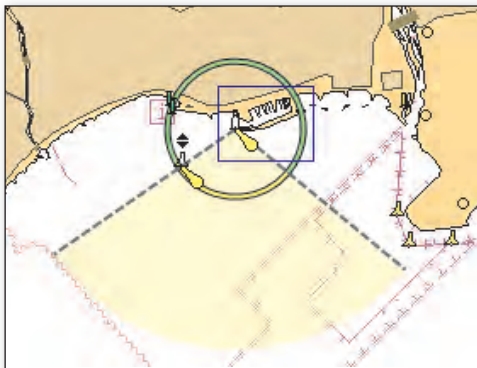


Figure 5.4 - Shaded Sector Lights



Land Features. On/off features such as bridges, names, towers, city outlines, buildings, etc. The **<L>** Hot Key toggles Land Features on and off.



Contours. Isobaths and their coloring. Click on the down arrow to reveal more options. The **<C>** Hot Key toggles Contours on and off.



Other Levels. Navigation and other chart information, such as channel names. The **<O>** Hot Key toggles Other Levels on and off.



Streets and Roads. Data layer of Passport Charts that overlays street and road information. Detailed city information is available for each region unlocked and Interstate and State highways are available for the entire United States.



Display Passport Data Layers. Marinas, Ports and Services, Local Information, Geographic locations, World Port Index. Click the down arrow to reveal more options.



Chart Coloring. Used to change the colors of the Passport charts to match the conditions under which they are being used. To change chart colors, open any Passport Chart and click on the **Chart Color** tool.



Shaded Relief. On/Off if bathymetric data is loaded. Click the down arrow for additional options. The **<Ctrl+R>** Hot Key toggles Shaded Relief on and off.

The Chart Table

The Chart Table is a chart storage repository - it is also where you manually install and uninstall individual charts and locate navigation objects. To open:

- Click the Chart Table button on the ToolBar or
- Select **File | Chart Table** from the main menu.



TIP: If you have enabled automatic chart installation, manually installing charts is not necessary. See **Chapter 3 - Installation** for Chart Installation.

The Open Tab

The Open Tab is divided into two main sections:

- **Chart List Pane** which displays all folders containing installed charts. Typically there are two folders: **Charts at Vessels Position** and **All Charts**. Click on the + symbol to expand the folder.
- **Chart Details Pane:** Displays location, technical details, boundaries and edition dates for any chart highlighted in the Chart List Pane.

To open a chart, highlight it and double-click or click **Open**.

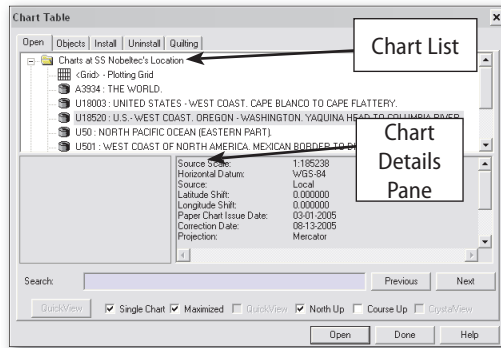


Figure 5.5 - Open Tab of the Chart Table

The Objects Tab

The Objects Tab of the Chart Table allows you to select and open a chart according to the position of an object. To locate an object:

1. Click **File | Chart Table** and select the **Objects** Tab.
2. In the left menu, place a check-mark next to the data type you wish to view (such as Routes). The right window will display a list of all objects of that data type currently saved in the program.
3. Click on a specific object (such as "Route #12") in the right window to locate. Right-click on the object and select **Locate This** from the pop-up menu. The object will display in the center of the chart.

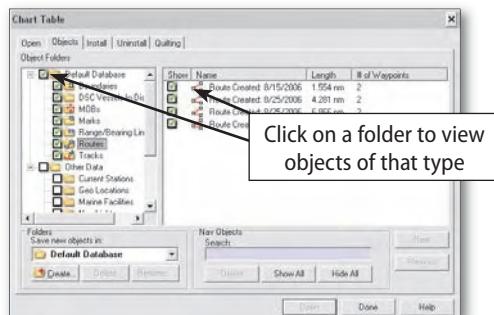


Figure 5.6 - Objects Tab of the Chart Table

To change the **View Settings** for Objects in the Chart Table:

1. Click **File | Chart Table** and select the **Objects** Tab.
2. In the left menu, expand the folder for the data type you wish to change the view settings for (see Figure 5.6). Place a check mark next to the item type or select **All Visible** to make data of that type visible. **None Visible** makes all data of that type invisible on the chart.
3. Click **Done**.



WARNING: Be careful not to press **Delete** or the highlighted object will be erased. If you delete an object, there is no way to restore it.

The Install Tab

Use the Install Tab to install multiple data types, Permits & Unlock codes, Extra Nav data, BSB5 perspective photos, Raster and Photo Charts, USGS Topographic maps and to integrate the interactive features from other Nobeltec products such as the InSight Sounder, IR2 Radars, GPS, etc. See Page 3 for Chart and Supplemental Data installation.

The Uninstall Tab

Uninstalling a chart deletes it from your hard drive, but does not delete the permit code for Passport World Charts, so you can reinstall without requiring new permit codes.

To Uninstall Charts:

1. Click **File | Chart Table** and select the **Uninstall** Tab.
2. Select **Charts** from the drop-down box.
3. Select one or more charts to uninstall. Selected charts are then highlighted in **blue**.
4. Click **Uninstall**.
5. Close the dialog by clicking **Done**.

The Quilting Tab

The Quilting Tab of the Chart Table can be used to add or remove charts from the quilt. This may be necessary because of chart projection, chart skew angle or personal preference. For instance, if notes from one chart cover navigable water on another chart. Use the <Q> Hot Key to toggle Quilting on and off.

To remove charts from the quilt:

1. Click **File | Chart Table** and then click on the **Quilting** Tab.
2. From the list on the left, click on the chart you want to remove from Quilting. If no charts are listed, no charts are installed.
3. Click **Remove**, then click **OK**.

Removing Charts From Quilting (While On An Open Chart)

Right-click on the chart to remove from the quilt. Select **Remove "Chart Name" from the Quilt** from the pop-up menu.

Removing All Skewed Charts From Quilting

This feature is usually used only on raster charts.

1. Click **File | Chart Table** and then click on the **Quilting** Tab.
2. Below the list of charts that appear, click **Remove All Skewed Charts**.
3. Click **Done**.

Closing Charts

You can close the chart by clicking the Close (X) button in the upper right corner of the chart window or by selecting **File | Close Chart**, **File | Close All** or **File | Close All But Active**. You can also close all windows by clicking the **<Ctrl+Shift+F4>** Hot Key.

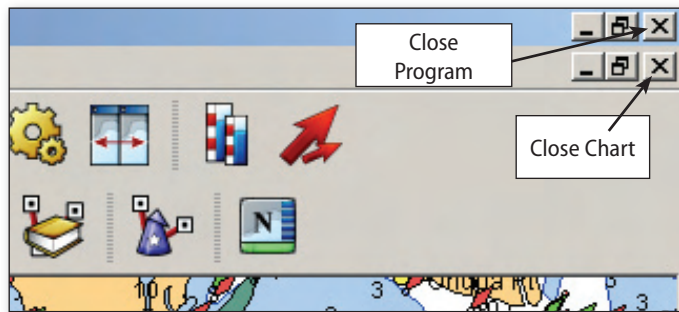


Figure 5.7 - Closing a Chart Window

6 Basic Skills

Navigating Charts

This section shows you how to view and manipulate the chart window. It is essential to master these skills before proceeding to the following sections.

Automatic Panning. Move the cursor to the edge of the chart to scroll across a chart. Drag cursor back to the middle to slow speed or release to stop scrolling.

Chart Centering. Double-click while pointing at a location on the chart to center the chart at that position.

Arrow Keys. If your keyboard has combined number pad/arrow keys, make sure that **<NumLock>** is off. Hold down **<Ctrl+←→↓↑>** (arrow keys) to pan the chart a very small amount or **<←→↓↑>** to pan a greater distance.



Center on Boat Command. Quickly centers view on the boat position.

Multiple Chart Windows

Use the Copy Window command to display more than one chart window at a time. Click **Window | Copy Window** to copy the existing chart window.

From the main menu, click on **Window | Tile Vertically** or **Window | Tile Horizontally** to automatically fit multiple chart windows into the workspace.

Zooming/Overzooming

Use the following methods to zoom in or out:

- **<+>** and **<->** keys on your keyboard or ToolBar
- Click your mouse scroll button once and then scroll up or down with the mouse scroll button to zoom in or out.
- Right-click on the chart window and select Other Charts from the pop-up menu to select a chart/scale.
- **Drag Zoom.** Drag and drop the mouse diagonally across the screen to create a zoom-in field.



WARNING: Nobeltec contains a safety feature called "Overzoom Notification". If a chart is displayed on the screen at a resolution greater than its source scale, the user will be visually notified by the word "OVERZOOM" in the title bar and diagonal lines across the chart (see **Figure 6.1**).

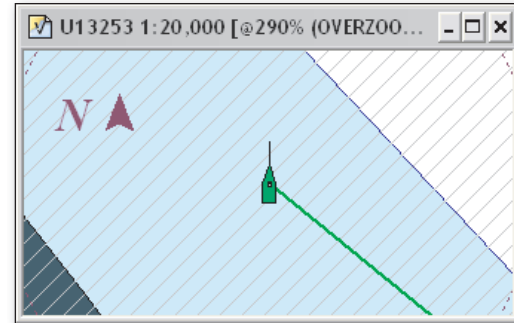


Figure 6.1 - Overzoom Feature

Scrolling/Panning

- Use the arrow keys on the keyboard.
- With the cursor at the edge of the chart, you should see a black arrow next to your cursor. Click and hold the left mouse button and move the black cursor towards the center of the screen to slow scroll speed.
- Use the **<Page Up>**, **<Page Down>**, **<End>** and **<Home>** Hot Keys to scroll the chart up, down, left and right respectively.



Hand Panning. The Hand Panning Tool allows you to easily move the chart across the Chart window pane. When enabled, the cursor will change into a Hand icon and you will be able to "drag and drop" the chart easily. You can also turn on Hand Panning using the **** Hot Key. Press the Hand Panning ToolBar button again, **** or **<Esc>** to turn off Hand Panning.

Autoscroll Modes

Keep the vessel in the chart windows while underway. These options are available from the right-click pop-up menu or the **View | Autoscroll** menu.

Look-Ahead. Keeps the vessel image at the edge of the chart window, opposite the side from where you are travelling.

Follow the Predictor. Keeps predictor centered in the chart window.

Follow the Boat. Keeps boat centered in the chart window.

Chart Orientation and Marking

Course Up

Rotates the chart to always display according to your heading, boat icon pointing up. Right-click on the chart and click **Chart Orientation | Course Up** from the pop-up menu, the **<H>** Hot Key or **Course Up** button on the ToolBar.

North Up

Some raster charts are produced with orientation other than North Up. You can orient these charts by right-clicking the chart and selecting **North Up**. Use the **<N>** Hot Key to toggle North Up on and off.

Bookmark

Use the Bookmark feature to save a particular chart, scale or chart location and return to it with a single keystroke. **To Set a Bookmark**

1. Open the chart you want, select a scale and position on the chart.
2. Click **Edit | Set Bookmark** or click **<Shift + F10>**.

To go to a Bookmark, click the **<F10>** Hot Key.

Objects

User-Created Objects

You can place a number of icons or navigation objects on the chart at your specification. These include marks, waypoints, routes and more. Objects like Routes, Marks and Waypoints are used to navigate courses, plan trips and determine the optimal course to follow. Each object has specific characteristics, called Properties, that provide information about the object. Properties include the object name, icon, arrival circle, etc.

All objects are created and manipulated in a similar way.

Connected Objects

Connected objects include: Instant Waypoint, Range and Bearing, Boundaries and Routes. Use Marks to connect these objects into a single object.

The chart will scroll if a route extends beyond the chart window. If Quilting has been disabled, an adjacent chart will open as needed. This creates routes

without interruption and with a close-up view. Use the **<+>** and **<->** keys to zoom in or out. If Quilting is off, use **<Ctrl> <+>** and **<->** to switch charts.

Manipulating Objects on the Chart

There are three ways to place an object:

1. Click the **object** button (Mark, Annotation, etc.); Right-click and select **New | object name** from the pop-up menu; or select **Edit | New | object name** from the main menu.
2. Click the chart where you would like to place the object.

To move an object:

1. Click on the object to move and hold down the left mouse button.
2. Drag and drop the object to a new location or right-click on the object and choose **Properties** to edit the Lat/Lon of the object.



NOTE: You can also use the following Hot Keys to move an object you have clicked on in the Chart window pane: **<Shift+↑>** or **<Shift+Page Up>** moves the object up; **<Shift+↓>** or **<Shift+Page Down>** moves the object down; **<Shift+←>** or **<Shift+End>** moves the object left; **<Shift+→>** or **<Shift+Home>** moves the object right.

To delete an object:

1. Click once on the object you wish to delete.
2. Press **<Delete>** or select **Edit | Delete**.



NOTE: Once you have placed, moved or deleted an object, select the next object on the chart by clicking the **<Tab>** Hot Key.

Marks



Marks - A user-defined point on the chart that can be labeled and connected to other marks. Use the **<F7>** Hot Key to create a new mark at the Lat/Lon of the cursor.

Event Mark



Event Mark - Event Mark marks the boat's current position.

To create an Event Mark, select **Edit | New | Event Mark** from the main menu or press **<F5>**. An event mark will be automatically placed at the boat's

current position. Press and hold **<Ctrl>** while creating an Event Mark to add current depth to the name (if depth sounder is connected).

To change the default Event Mark icon:

1. Select **Tools | Options** from the main menu.
2. Go to the **Misc.** Tab.
3. Select a new icon from the "**Default Event Mark Icon**" listbox.
4. Click **OK**.

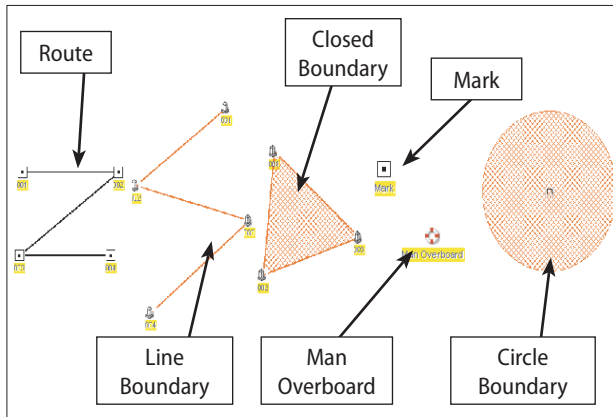


Figure 6.2 - Examples of User Created Objects

Annotations



Annotations - An annotation is a Mark without an icon consisting of multiple lines of text displayed on the chart.

Man Overboard



Man Overboard - Assists in recording and navigating to a position. Man Overboard is a modified Mark but retains all normal Mark properties.

1. Click the **Man Overboard** button on the ToolBar or **<F4>**.
2. The chart will re-center and place the icon directly under the vessel.
3. The Man Overboard mark will become the active mark, with range and bearing information displayed on the console or NavBar.

Instant Waypoint



Instant Waypoint - Creates a simple route consisting of two waypoints from the boat's current position to a location you choose.

1. Click **Instant Waypoint** on the ToolBar or select **Edit | New | Instant Waypoint** from the main menu. A mark called "Origin" will be placed at the current boat position.
2. Left-click on the selected destination to activate the second mark.

Range/Bearing Lines



Range and Bearing - Boat to Point - Allows you to obtain range and bearing from the boat to another point on the chart.

1. Select **Edit | New | Range/Bearing Line | Boat to Point** from the main menu, the **<F12>** Hot Key or the **Boat to Point** button (if added to the ToolBar).
2. Click any point on the chart to view range and bearing to that point.



Range and Bearing - Point to Point - Allows you to view the range and bearing between two points on the chart.

1. Select **Edit | New | Range/Bearing Line | Point to Point** from the main menu, the **<Shift+F12>** Hot Key or the **Point to Point** button (if added to the ToolBar).
2. Click on any chart point, drag your cursor to the second point and click again to create a Point to Point range/bearing line.

Route



Routes - Routes consist of a series of waypoints. Use routes alone or in conjunction with an auto-pilot to increase navigation ease and safety.

1. From an open chart, click the Route tool on the ToolBar, click the **<F8>** Hot Key or select **Edit | New | Route** from the main menu.
2. Click on the chart to place the first waypoint (see **Figure 6.3**). As you move the cursor to the next position, a line is drawn from the previous waypoint to the cursor and range/bearing text is displayed.
3. Click on each subsequent position until the route is completed.
4. Double- or right- click on the last waypoint location or click **<Esc>**.

- Enter a route name or accept the default name (which is the date and time the route was created). *The naming prompt feature can be disabled from the Misc. Tab of the Tools | Options dialog.*

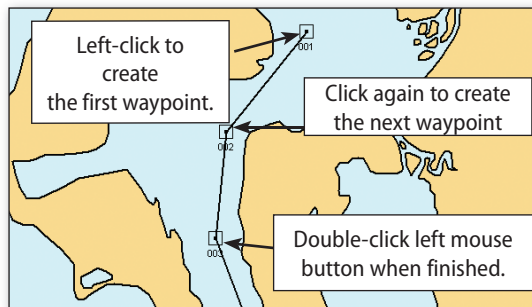


Figure 6.3 - Creating a Route

To move a waypoint, click on the waypoint and drag and drop it to the desired location.

Tracks



Tracking - A Track is a graphical representation of the historical path of your vessel. It is made up of a series of track points connected by line segments whose length depends on the frequency of track recording. Track point recording can be modified using the **Boat Properties** menu, **Track** Tab. Track Colors can be modified with the **Tools | Tracking | Track Line Coloring** option.

To turn tracking on or off, click on the **Track** button on the ToolBar, the **<T>** Hot Key or **Tools | Tracking**.

Track Line Coloring (Admiral/Sailing Plus Pack Only)

Tools | Track Line Coloring opens the track coloring dialog box. Track Coloring allows you to color the track line based on specific data types such as water temperature or depth. If you use this option, you must be receiving appropriate data from an NMEA device. For example, if you choose track based on **depth**, you will need to have a transducer sending depth data.

- Use the drop-down menu to select a data type to track.
- The color bar is segmented by dividers that indicate the number of Tracks created.
- Left-click your mouse in the color bar to add a Track range divider.

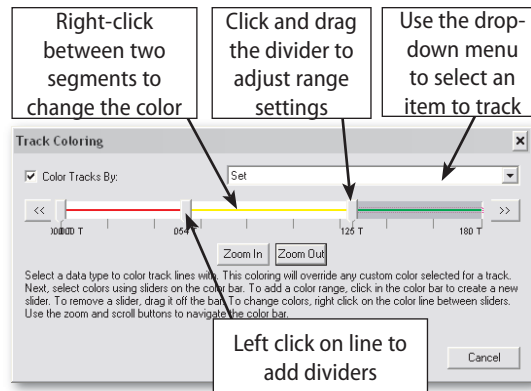


Figure 6.4 - Track Coloring Menu

- Drag the range divider back and forth to increase or decrease the number of tracks in that range.
- Drag the divider off-screen to remove it.
- Each color bar segment between dividers can be colored differently.
- To change the color of a segment, right-click on that segment and select a customized color from the provided swatch. Select a color by clicking on it and then click **OK**.

Track Point Management (Admiral/Sailing Plus Pack Only)

You should never exceed 10,000 saved track points, as files in excess of this size can slow system performance. At startup, if you have 5,000 or more track points, you will receive a warning message alerting you to potential system slowness.

Track Line Legend (Admiral/Sailing Plus Pack Only)

The Track Line Legend is an on-screen legend of existing track line colors, shown in the upper right-hand corner of the Chart window pane. This feature can be toggled on or off using **Tools | Track Line Legend**.

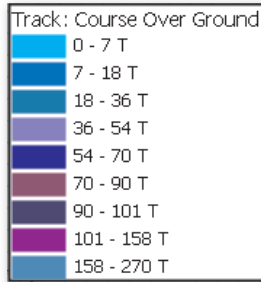


Figure 6.5 - Track Legend

Boundaries

Boundaries mark an area that you want to avoid. An alarm will sound when the boat or its predictor line passes over them. Types of boundaries are: **Circle Boundaries**, **Closed Boundaries** and **Line Boundaries**.



Circle Boundary - Isolate and encircle a hazard or other area to avoid on the chart. These can be placed to completely surround any hazard.

Boundary Circles can be used with the Alarms feature to alert you if your boat enters a circle. Boundary Circles can also be used as anchor alarms.

Once you have created a Boundary Circle click and drag the circle until the Boundary is the correct radius.



Closed Boundary - a polygonal-shaped enclosed boundary



Line Boundary - an irregularly-shaped open boundary line

To create a Closed or Line Boundary:

1. From an open chart, click the **Boundary** tool or select **Edit | New | Boundary | Type of Boundary** from the main menu.
2. Click on the chart to place the first boundary point and then move and click the cursor on the next boundary point position. A line will be drawn between each point and range/bearing text displayed.
3. Repeat until the boundary is completed.
4. Double- or right-click on the last boundary point location.

5. Enter a boundary name or accept the default name (which is the date and time the boundary was created). *The naming prompt feature can be disabled from the **Misc. Tab of the Tools | Options** dialog.*

Saving Objects

It is important to save all Objects you have created in order to keep them in your Route. To save all Nav Objects, click **File | Save All**.

Changing the Appearance of Objects

You can control how routes look on the screen. For example, you can hide range and bearing information, name individual waypoints and much more. The following are the most common route appearance changes.

Show/Hide Mark Names

To display or hide a Mark name:

1. Open **Tools | Options | Misc.**
2. Select Yes or No from the **Show Mark Names** option (default is Yes).

Hide Range/Bearing Information

1. Right-click on any segment of the route between two waypoints.
2. From the pop-up menu, click the **Hide Leg Range/Bearing** command.

You can also use the **<Shift+R>** Hot Key to toggle Leg Range Bearings on and off.

Changing a Waypoint Icon

Each waypoint in a route has its own properties, such as the icon displayed. All of the properties for an individual waypoint can be edited.

1. Right-click on a waypoint and select **Properties** from the menu.
2. Click on the **Icon** Tab of the Properties dialog box. Scroll through the list and select a new icon.

Changing the Color of a Route

1. Right-click on any leg of the route and select **Color** from the menu.
2. From the color palette, choose the color you want and click **OK** or **Apply** to change the route's color.

Locking Objects

This feature secures any object you have placed and prevents accidental "nudging" or deletion.

Locking Objects With Multiple Points

This step locks an entire object.

1. With the object that you want to lock on the screen, right-click on the line between any two points.
2. From the pop-up menu, select **Locking | Lock {Object Type}**.

Locking Single Point Objects

To lock a single point in an object or group of linked objects:

1. With the object that you want to lock on the screen, right-click on the object and select **Properties** from the pop-up menu.
2. From the dialog box that appears, place a check mark in the box which says **Lock**.

7 Advanced Routes

Routes and Waypoints

Activating a Route

You can have an unlimited number of routes, but only one Active Route at a given time. An active route displays as bright green (by default) and has a special priority in the navigation system. When a route is activated, the first waypoint also becomes active and blinks on the screen.

When your boat comes within a preset distance (called the Arrival Radius) from the active waypoint, the next waypoint will activate. You can also view onscreen information about the vessel's approach to the active waypoint and forward that information to an auto-pilot.

To activate a route:

1. Right-click on any segment of the route between two waypoints.
2. Click **Activate** from the pop-up menu. The route will turn **green** and the first waypoint will be activated.



TIP: Deactivate by selecting Deactivate or by activating another route.

Activating a Waypoint

The first waypoint of a route is automatically activated when that route is activated, but you can also manually activate a different waypoint. To activate a different waypoint, right-click on that waypoint and select **Activate**.

Waypoint Arrival

When you are within a certain distance of the active waypoint, an arrival message displays and you are prompted to activate the next waypoint on the route. You may configure the software to automatically activate the next waypoint on a route (and direct your autopilot to turn your boat) without having this message appear.



Attention: Choosing the automatic waypoint selection feature will enable your autopilot to turn your boat and head it toward the next waypoint without any prompting or direction from you. **THIS COULD BE VERY UNSAFE IF YOU ARE NOT PAYING CONSTANT, VIGILANT ATTENTION TO YOUR SURROUNDINGS.** Choose this option **ONLY** if you are certain it is safe to travel between the waypoints in your presently selected route.

To set up Automatic Waypoint Activation:

1. Select **Tools | Options** from the main menu.
2. Go to the **Misc. Tab**.
3. Click **Automatically Activate the Next Waypoint Upon Arrival**.
4. Click the **Set Default Waypoint Arrival Distance** button to set the waypoint arrival alarm radius and alarm type. This tool provides notification when your vessel comes within a specified distance from the next active waypoint.



TIP: To set the arrival alarm distance for the current waypoint, select **Arrival Circle Radius** from the waypoint right mouse menu.

Setting a Waypoint Arrival Alarm

1. Click **Edit | Boat Properties** from the main menu.
2. Go to the **Alarm Tab**.
3. Place a check-mark in the check box next to **Waypoint Arrival**.
4. Click on the ... (dotted) button to access the Settings dialog.
5. Enter the distance from the current active waypoint at which you want the Waypoint Arrival Alarm to occur. ***This will change the default setting to the new distance, which affects every waypoint you create after the change.***
6. Select the radio button for the alarm setting of your choice. An alarm message box will still display even if the **No Sound** option is selected.
7. Click **OK**.

Splitting a Route

One route may be split into two separate routes using the Split Route command. You may decide to break some long routes into smaller routes or incorporate alternate routes to the same destination.

To split a Route:

1. Right-click on the segment of the route you would like to split.
2. Choose **Route | Split**. The route will split into two routes.

Joining Two Routes

Use this feature to join two routes into one (essentially the opposite of Splitting a Route). You can join a route to either the start or the end of another route. To join two Routes together:

1. Right-click on any segment of the route between two waypoints.
2. Select **Join** from the pop-up menu, then choose the **To Start of Another Route** or **To End of Another Route** as appropriate.
3. The cursor will change into an angled arrow. Click on the route you wish to append to. This will join the first and last waypoints of each route and all numbered waypoints will be renumbered sequentially.

Great Circle Route Builder

A Great Circle Route is the shortest navigable distance between two points. Flat map projections warp the curved surface of the earth, which means that you cannot always perceive the shortest route to draw on your chart.

Nobeltec Navigation Software contains a tool that can automatically generate a Great Circle Route between two user-specified points using one of three possible methods: specified number of waypoints; specified degrees of arc between waypoints; or specified degrees of longitude between waypoints.

1. Select **Edit | New | Great Circle Route** from the main menu.
2. Select the first and last waypoints to be used.
3. Select the method for calculating the waypoints.
4. Click **Create**. Routes created with the Great Circle Route generator can be named and edited just like any other route.

Creating a Route From a Track

You can use previous trips to create new routes.

1. Right-click on a track to display the Track pop-up menu.
2. Select **Create Route from Track**.
3. Specify the track distance to use and click **OK** to create a new route.



TIP: Even though the new route is created directly on top of the track, the track is still there - it is just covered up by the route.

Remove From Route(s)

Use this feature to remove a mark or waypoint from a route without deleting the mark itself. To remove a mark from a route:

1. Right-click on a mark you wish to remove.
2. Select the **Remove from Route(s)** command from the pop-up menu. The mark will be removed from all routes which passed through it. Numbered waypoints will be renumbered accordingly.



TIP: If removing a mark leaves a route with only one waypoint, the route will be deleted and the remaining waypoint will also be deleted unless its properties are set to **Permanent**.

Deleting Routes and Waypoints

You can delete individual waypoints and entire routes. To prevent accidental data loss, you will be asked to confirm each deletion. (This feature can be disabled on the **Misc.** Tab from **Tools | Options**). Nobeltec Navigation Software **does not have an Undo command**. *Deletions are immediate and permanent.*

To delete a route:

1. Select the route by clicking on any segment of the route between two waypoints. A route is selected when a gray box surrounds it.
2. Right-click on the route and choose the **Delete** command from the pop-up menu or click **<Delete>**.

To delete a waypoint:

1. Right-click on the waypoint and choose the **Delete** command from the pop-up menu or click **<Delete>**. Make sure to select only the waypoint, NOT the entire route.

Adding New Waypoints to a Route

There are two methods for adding new waypoints to existing routes:

1. Appending to a route will add waypoints to the beginning or end;
2. Inserting will add waypoints to the middle of a route.

To add new waypoints, access the Route menu by right-clicking on a Route - make sure to click on the route leg, not the waypoint.

Appending Waypoints to a Route

Appending to a route means adding new waypoints to its beginning or end. The first waypoint of a route is automatically numbered 001. New waypoints are added by default to the highest numbered waypoint, which is typically at the end of a route. To add a new waypoint to the beginning of a route, you

must first use the **Reverse** command from the Route menu to reorder the waypoints. Reverse is also used when navigating with active routes.

To add waypoints to the End of a route:

1. Right-click on any segment of the route between two waypoints - *be sure to right-click on the route, not the waypoint.*
2. Choose **Append New Mark** from the pop-up menu.
3. The cursor will change into the Route tool.

To insert new waypoints at the Beginning of a route:

1. Right-click on any segment of the route between two waypoints - *be sure to right-click on the route, not the waypoint.*
2. Choose **Reverse** from the pop-up menu. Waypoint numbers will reverse order.
3. Choose **Append New Mark** from the pop-up menu.
4. The cursor will change into the Route tool.
5. Add a waypoint to the Route.
6. When done, reverse the route again to restore it to its original order.

Inserting Waypoints

The Insert New Mark command is used to add new waypoints to the middle of a route. To add a waypoint to the middle of a route:

1. Right-click on the segment of the route between two waypoints where you want to insert a new waypoint.
2. Choose **Insert New Mark** from the pop-up menu. A new waypoint will appear on the route line at the point where you clicked.
3. Drag the new waypoint into the desired position.

Using Existing Marks During Route Creation

You can create a route from existing marks using the Route tool to connect existing marks and convert them into the waypoints of a route. To create a route from a series of existing marks:

1. Place Marks on your chart as desired using the **Marks** tool.
2. Using the **Route** tool from the ToolBar, click on the first mark. A dialog will appear asking if you would like to place a new mark or use the existing mark. Click **Yes** to use the existing mark.
3. Repeat this step with the remaining marks, creating a route.

Sharing Waypoints

This feature allows marks to be shared between multiple routes, which is useful if you have several routes which end or begin in the same place. *If you change the name or position of a shared mark, it will be changed for all routes.*

To share a waypoint between routes:

1. Create the first Route.
2. Begin creating the second Route.
3. When you get to the area that contains the mark to be shared, click on the existing mark from the first route.
4. When prompted, click **Yes** to use the existing mark.

Reversing a Route

The first waypoint of a route is automatically numbered 001 and waypoints increase in numerical order. To navigate a route in the opposite direction from which it was created, you must first reverse the order of the waypoints. To reverse the order of a route:

1. Right-click on any segment of the route between two waypoints - *be sure to right-click on the route, not the waypoint.*
2. Choose **Reverse** from the pop-up menu. Waypoint numbers will reverse order.

Existing marks that have been used in another route and renamed keep their names when the route is reversed. Only waypoints with their original, automatically assigned numbers will be renumbered.

Route Wizard



The Route Wizard automatically creates a route from a user selected origin to destination. You can set parameters such as depth, distance from land, minimum and maximum route leg lengths, etc. The Route Wizard requires 3D bathymetric or detailed vector data in order to automatically create a route. Before you start using the Route Wizard, it is important to note two things:

- Start and end waypoint locations cannot be on land and must conform to the parameters that you set. For example, if you set the distance from land to 300 feet, the starting and ending waypoints must be at least 300 feet from shore.
- If you click **Use Pre-Existing Route Legs**, the Route Wizard will attempt

to create the route using parts or all of nearby routes.

To create a route using the Route Wizard:

1. Click **Tools | Route Wizard** or use the Route Wizard ToolBar button.
2. When the Route Wizard is displayed, click **Next**.

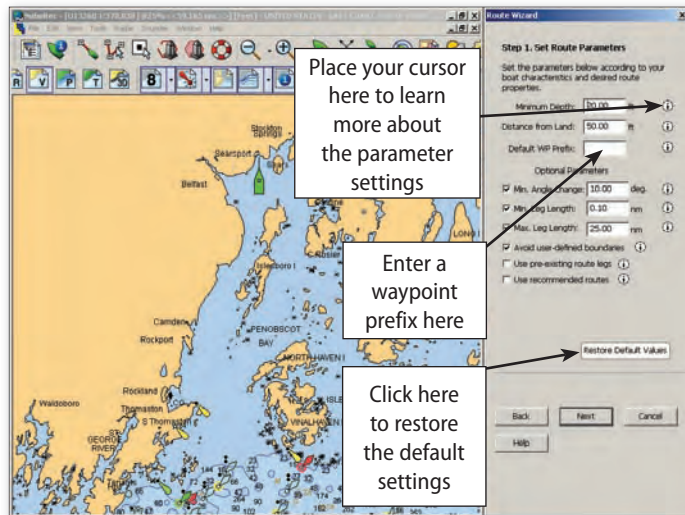


Figure 7.1 - Route Wizard Parameters

3. Set the Route Parameters. For information on each Parameter, roll your mouse over the Information Icon (Figure 7.1). Click **Next**.
4. Set a location for the starting waypoint in one of three ways:
 - a. Click on the chart at the starting location
 - b. Enter a latitude & longitude
 - c. Click the drop-down menu and select a waypoint from the list
5. After selecting the starting waypoint, click **Next**.
6. Set the location for the ending waypoint (see Step 4). When finished, click **Next**.
7. The Route Wizard will now attempt to find a pathway from the starting to ending waypoints. If it cannot find a pathway, the Route Wizard will prompt you to retry.
8. When a pathway has been established the Route Wizard will then

optimize the Route. This may take several minutes.

9. When the Route wizard is finished you will see a list of the waypoints. You must review the route and click **OK** to finish.

8 Properties & Options

Properties Menus allow you to edit settings for nearly all of the objects in the software. Most Properties Menus operate similarly and are divided by topic Tabs where you may edit information. To open the Properties Menu for an object, right-click on that object and select **Properties** or click on the object and use the **<Alt+Enter>** Hot Key.

Mark Properties Menu

General Tab

The General Tab contains general, editable information about an object. You may also make an object visible or invisible from this Tab, which is useful when you have saved a large number of routes in a small area of chart space.

Description Tab

Use this Tab to write a free-form description of an object. The **New Attachment** button allows you to attach a file to the object, such as a text file log, Word document, etc. To attach a document, click **New Attachment**, **Browse** to locate and Open the file, then click **OK**.

Icon Tab

The Icon Tab helps you change the visible appearance of a given Mark, making it more easily identifiable on the chart. Using the Icon Tab, you can choose from a list of item-specific icons such as a dive symbol, a fish icon, etc.

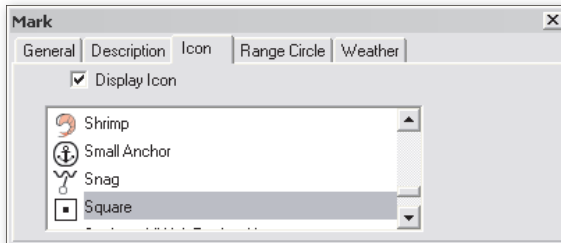


Figure 8.1 - Mark Properties - Icon Tab

Range Circle Tab

Range Circles provide an easy, visual reference to distances around a mark.

Click on the **Range Circle** Tab and put a mark in the check box labeled **Display Range Circle(s)** to enable range circles around the Mark or use the **<R>** Hot Key to toggle Range Circles on or off.

Weather Tab

The Weather Tab provides non-editable weather information for the location of a mark or waypoint based on data from the selected Weather Provider. For more information on Weather and weather providers, please see **Chapter 13 - Weather and Wind**.

Route Properties Menu

The Route Properties Menu is nearly identical to the Mark Properties Menu, but only includes the General, Description and Range Circle Tabs.

To open the Route Properties Menu, click on any route leg and select **Properties**. *Be sure to right-click on the route, not the waypoint - clicking on a waypoint opens the properties menu for that waypoint.*

Boat Properties Menu



The Boat Properties Menu allows you to adjust various aspects of your vessel and how it is displayed on the chart. Click on the **Boat Properties** ToolBar button, right-click on the vessel icon and select **Properties** from the pop-up menu or select **Edit | Boat Properties** from the Main Menu.

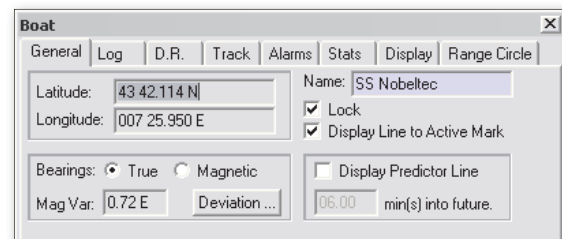


Figure 8.2 - Boat Properties Menu

General Tab

The General Tab allows you to input the name of your vessel, set the bearing to true or magnetic and display a course predictor line, lock the vessel at current Lat/Lon coordinates and display a line to the active mark or waypoint.

If no GPS is connected, input a set of Lat/Lon coordinates to move the boat to that location. If your Nobeltec program is receiving GPS data, the boat will be automatically moved to the position indicated by the GPS.

Deviation Table and Master Heading

This table provides a method for making adjustments to the input heading used, as well as a table for entering the vessel deviation (the impact of magnetic interference at specific degrees). To setup the deviation table:

1. Open the Boat Properties Menu.
2. Click the **Deviation...** button on the **General** tab.
3. Adjust deviation on a per-bearing basis by adding deviation amounts, which are the same amounts shown on a compass card and which may have been provided by your compass adjuster.
4. You can also add a Master Heading correction which will apply to all headings. Use this option to correct for a misaligned heading sensor.

Log Tab

This Tab contains a logbook feature for keeping accurate records of voyages.

Automatic Logging

In automatic mode, log entries are automatically created at a specified time interval. This automatic log records specific boat information, including date, time, Lat/Lon, Speed Over Ground (SOG), Course Over Ground (COG) and other available instrument data. The logfile is a Tab-delimited text file suitable for importing into a word document, spreadsheet or database.

To enable automatic logging, place a check-mark in the Automatic Logging box and enter the period of minutes between log entries. To begin logging data, you must also create a new logfile.

To create a new logfile:

1. **Browse** to the folder you wish to store your Logfile.
2. Input the new Logfile name.
3. Click **Open** to return to the Log Tab of the Boat Properties Menu.



WARNING: Logfiles can be extremely large. You should periodically create a new, uniquely-named logfile and save your old logfile to a storage device or disc. Large logfiles can cause system and program slowness.

Manual Logging

To create a manual log entry:

1. Click **New Log Entry**.
2. In the box provided, enter the log entry and click **OK**.



TIP: You can also make manual log entries by selecting **Edit | New Log Entry** from the Main Menu.

Viewing Logfiles

The **View Log** button opens the logfile that is listed in the directory next to the **Browse** button. To review a different logfile, **Browse** to that logfile folder and click **Open** then **View Log** again to review the logfile.



TIP: You can also open the current logfile by selecting **View | View Ship's Log** from the Main Menu.

Dead Reckoning Tab

Dead Reckoning (D.R.) is a fallback method of navigation where known values are used in place of unknown values. It is used when GPS unavailable or lost while at sea. Some of the features in Dead Reckoning are included for the purpose of learning and experimenting with the software when the computer is not connected to any navigation inputs. In this mode, you can simulate boat placement and movement on your home computer without a GPS connected.

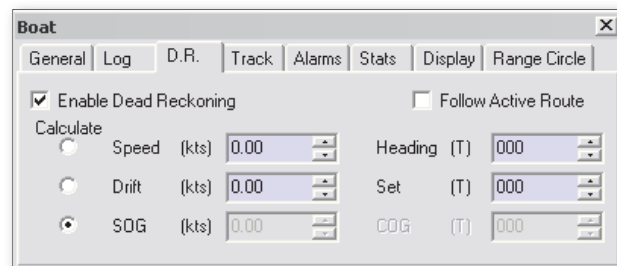


Figure 8.3 - Boat Properties - D.R. Tab

Dead Reckoning is enabled automatically whenever GPS input fails or is interrupted. The boat icon will then continue on its same speed and heading until input resumes. This feature can be disabled from the **Tools | Options** menu on the **Misc.** Tab. To enable Dead Reckoning manually:

1. Plot a check-mark in the check box next to **Enable Dead Reckoning**.
*If you have an active route, place a check-mark in the box next to **Follow Active Route** to have the boat icon follow that route.*
2. Select the radio button next to the values you would like to calculate (**Speed/Heading, Drift/Set** or **SOG/COG**).
3. If not following an active route, enter the known or approximated values into the active text boxes (required for calculation).

Calculating Speed and Heading for Dead Reckoning

- If the GPS is connected, SOG and COG will be provided by the GPS and you can enter values for set and drift.

Calculating Set and Drift for Dead Reckoning

- If the GPS is connected, but boat heading and speed instrumentation are not, COG and SOG will be displayed in their respective panels.
- If there is GPS failure and Automatic Simulation is selected, previous values for SOG and COG will show in those fields. Input speed and heading into the text boxes to generate values for set and drift.

Calculating SOG and COG for Dead Reckoning

Calculations for Speed Over Ground and Course Over Ground are important if you have no GPS or if it is not working.

- If your GPS fails, the software may be set up to simulate boat movement according to the last recovered SOG and COG values.
- If you have no GPS, follow the instructions for enabling Dead Reckoning, entering values for speed, heading, drift and set into the appropriate text boxes.

Track Tab

Tracks are a graphical representation of the historical path(s) of your vessel. They are made up of a series of track points connected by line segments whose length depends on the frequency of track point recording. You can configure the frequency of those track points using the Track Tab.

Before you can make edits to items in the Track Tab, turn on the tracking feature by placing a check-mark in the check box next to **Enable Boat Track Recording** or by clicking on the **Tracking** button on the ToolBar.

Enable Boat Track Recording

With Tracking activated, at least one **Record By** option must be selected:

- **Course Change** - records a track segment every time your course changes by the specified number of degrees. Input this specification into the provided text box. This option is useful on trips where you wish to record only major course changes. The default setting is 15°.
- **Time** - set the time interval that best meets your needs. The default time interval setting is 300 seconds (5 minutes).

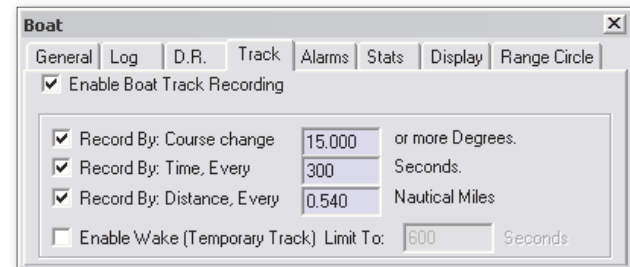


Figure 8.4 - Boat Properties - Track Tab

- **Distance** - records intervals of user-specified distance to produce an evenly segmented track. Input this specification into the provided text box. The default distance setting is 0.5 NM.



WARNING: Setting Record By options to a small number (i.e. 1° of Course Change or every 10 seconds) will create a large number of track points. This increases overall file size and can slow software performance.

Enable Wake

When checked, the Enable Wake box limits the length of the track to a user-specified time integer (minimum value is 1 second). This is useful if you are travelling in a small area and the chart is cluttered with track lines.

Alarm Tab

Nobeltec Navigation Software allows you to set a number of Alarms, which can be used to alert the Captain of upcoming waypoints or hazards. Alarms are triggered when user-specified events occur or when selected values are reached. Alarm modes can be enabled by checking the appropriate boxes on the Alarms Tab.

Alarms can be configured to sound continuously, singly or as no sound. Click the dotted button to the right of a selection to modify alarm parameters.

Waypoint Arrival Alarm

The Waypoint Arrival Alarm interfaces with active waypoints. By default, the software provides an audible alarm when your vessel is within a certain distance of your active waypoint. Turn off the alarm by removing the check-mark in front of the **Waypoint Arrival** option.

Edit the arrival radius and sound settings by clicking on the  button.

Changes to the Waypoint Arrival distance after routes or marks have been created do not affect those objects. To change Waypoint Arrival distance for existing waypoints, change their Arrival Circle Radius (see **Waypoint Arrival** in **Chapter 7 - Advanced Routes**).

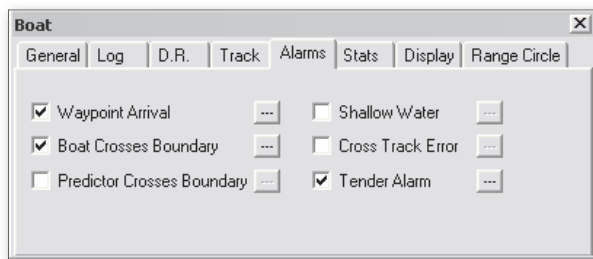



Figure 8.5 - Boat Properties - Alarm Tab

Boundary Alarm(s)

There are two types of Boundary Alarms: **Boat Crosses Boundary** and **Predictor Crosses Boundary**. To use the Predictor Crosses Boundary Alarm, you must first activate the **Boat Predictor Line** (see the **Tools | Options | Targets Tab** settings in this chapter). To set a Boundary Alarm:

1. Place a check-mark in the **Boat Crosses Boundary** or **Predictor Crosses**


Boundary check box.

2. Click the  button to open the **Boundary Alarm Settings** dialog box.
3. Choose the type of alarm sound (No Sound, Sound Once or Sound Continuous) and then click **OK**.

Shallow Water Alarm

The Shallow Water Alarm is triggered when the value supplied by a depth sounder is less than the user-specified minimum depth. This feature does not work if there are no depth inputs connected to the computer.

To set a Shallow Water Alarm:

1. Place a check-mark in the **Shallow Water** check box.
2. Click the  button to open the **Shallow Water Alarm Settings** dialog box.
3. Input the water depth that will trigger the alarm.
4. Choose which value to base the alarm from (**Water Depth**, **Depth Below Transducer** or **Depth Below Keel**).
5. Choose the type of alarm sound (No Sound, Sound Once or Sound Continuous).
6. Set a Transducer Offset. This setting calculates the vertical distance from the surface of the water to the transducer's installed location. Establishing your offset in this field allows Nobeltec Navigation Software to determine actual bottom depth to trigger the shallow water alarm.
7. Click **OK**.




Attention: Depth sounders may occasionally transmit false readings, showing a false "spike" in depth. Such spikes are easy for a human operator to discern and disregard. However, without a filtering program, your computer is unable to analyze these anomalies.

Cross Track Error (XTE)

Cross Track Error is the distance that the boat has deviated from the designated route. In certain areas, deviation from the route could put a vessel in danger. XTE readout is displayed on the Console in the Helmsman Display, the NavBar Active Mark Tab or in the InfoBar. In **Figure 8.6**, the blue area is the safe zone and the center line is the route line or heading. If the vessel icon moves outside of the user-specified blue area, the Cross Track Error Alarm will notify you that the vessel has gone too far off course.

To set a Cross Track Error Alarm:

1. Place a check-mark in the **Cross Track Error** check box.
2. Click the  button to open the Cross Track Error Alarm Settings dialog box.

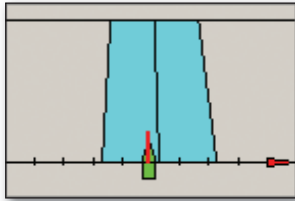



Figure 8.6 - Helmsman Display

3. Input a value for the amount of deviation from the planned course of travel at which you'd like the alarm to begin alerting you.
4. Choose the type of alarm sound (No Sound, Sound Once or Sound Continuous) and then click **OK**.


Tender Alarms (Admiral Only)

Tender Alarm

If a Tender exits an established Guard Zone, a Tender Out of Range alarm will sound and a pop-up will appear onscreen. This alarm will clear once the Tender re-enters the Guard Zone or can be turned off manually. The range for a Tender Guard Zone is between .0001 and 1000 units of measurement.


 **NOTE:** All units of measure are adjustable from **Tools | Options | Units**.

To create a Tender Guard Zone:

1. Place a check-mark in the Tender Alarm check box.
2. Click the  button to open the Tender Alarm Settings window.
3. Input a distance from the boat that you do not wish the Tender to exceed. This is a 360° radius around the vessel.
4. Select how you wish the alarm to function if the Tender crosses the Guard Zone (No Sound, Sound Once or Sound Continuous).
5. Click **OK** to close the Tender Alarm Settings window.

Seetrac Alert


If your STU is equipped with an Alert function, users of the STU can raise an audible alarm within Admiral by pressing and holding the Seetrac Alert Button. An alarm message will appear onscreen when that alert is received. The message reads "Tender *ID* has sounded an onboard alarm. BRG XXX, distance XXX".

 **NOTE:** Tender ID settings are configured using the **Tender Directory** from **Tools | Options | Targets** (see **Chapter 25 - Tender Tracker**).

Click **Acknowledge** to close this message and turn off the alarm.

Stats Tab

The Stats Tab is where you input specific information about your vessel. Within Admiral, you may also specify the location of the GPS on your vessel, which makes positioning the boat icon on the chart more accurate. Use the Tool Tips to give you more information about each setting.

 **NOTE:** Keel Offset, the distance from the bottom of the keel to the transducer, is automatically calculated using your Transducer Offset (**Tools | Options | Sounder | Transducer Offset**) and Draft settings.

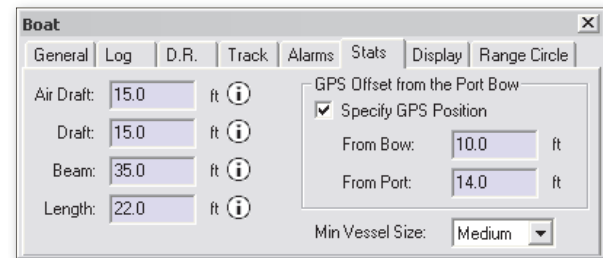


Figure 8.7 - Boat Properties - Stats Tab

Display Tab

The Display Tab is where you set the shape of the boat icon (Nobeltec Traditional or Rounded), as well as specifications for the vessel's heading line. Heading line length can be set to be Short, Medium or Long (to edge of screen) and you can also set how thick the heading line will appear.

Range Circle Tab

Range Circles display your range to any potentially dangerous obstacles. Use the Range Circle Tab to place range circles around your vessel.

Tools | Options Menu



The Nobeltec Navigation Software Options menu can be accessed by selecting **Tools | Options** from the Main Menu or by using the **Options ToolBar** button. The Options menu provides access to a number of important settings.

Ports: Configure Tab

The Ports: Configure Tab of the Options menu is where you configure Input Ports and Autopilot/Output Ports.

Input Ports: Designates COM ports that will receive data from other devices.

Output/Autopilot Ports: Designates COM ports to which data will be sent.

From the COM Input Configuration window, you can include or exclude specific data sentences or entire device sentence streams.

- **Require Valid Checksums On All Sentences:** If this option is enabled, Nobeltec Navigation Software will ignore any data that does not contain a valid checksum (used to validate incoming data). Equipment conforming to previous versions of NMEA 0183 specifications do not always use checksums in all data sentences.
- **Require Checksums To Be Valid if Present:** If selected, Nobeltec Navigation Software validates sentences that contain checksums, but accepts sentences that do not contain checksums.
- **Report Checksum Discrepancies:** If selected, NNS alerts you if a checksum error is found.
- **Ignore Invalid GPS Position Data:** If selected, NNS ignores GPS data that is inconsistent with the NMEA 0183 standard.



NOTE: AIS and GPS data streams should always be set up on separate ports. Failure to do so may result in Nobeltec Navigation Software losing the GPS data signal, thereby setting off alarms unrelated to actual threats.

- **Use GPS Time:** When selected, program time conforms to the time reported by your GPS device.
- **Detect GPS MOB and MOB Hardware:** Used to detect NMEA sentences related to MOB coming from devices such as a GPS or other MOB-

specific hardware you may have onboard.

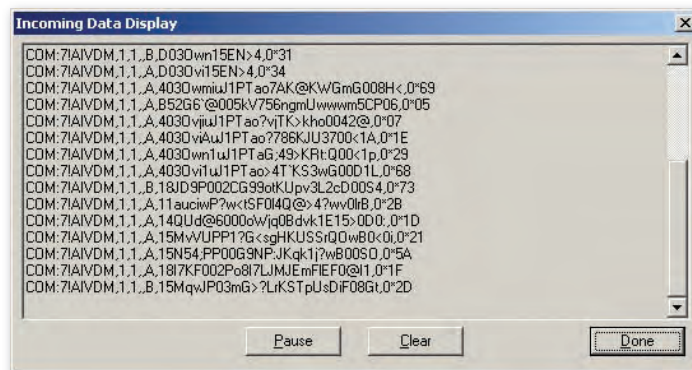


Figure 8.8 - Incoming Data Display Window

- **Log All Input and Log All Output:** This tool is used for debugging and problem solving. Sometimes a Jeppesen Marine product support provider will ask you to record input or output for diagnostic purposes. Default Log location is \\Program Files\\Nobeltec\\Visual Series\\COM1-OUT.LOG. The log is reset when the application is restarted.
- **Configure This Input Port...:** Opens the COM Port Input Configuration dialog box.
- **Configure All Output/Autopilot Ports...:** Opens the Configure Output/Autopilot Settings dialog box.
- **GPS/Port Setup Wizard:** Runs the GPS/Port Setup Wizard from within the program.
- **View Data:** Opens the Incoming Data Display window, showing that NNS is receiving data in real time.

Data Output

NNS can output specific data sentences to a pre-selected list of hardware devices. Click **Configure All Output/Autopilot Ports** to open the Configure Output/Autopilot Settings dialog box. Sentences capable of output include Waypoint Arrival Data, Autopilot Data, Bearing, Heading, etc., as well as some custom sentences such as B&G® Polar Speed (if you have Sailing Plus Pack installed).

Port Priorities Tab

Port Priorities are used to resolve conflicts occurring when two or more devices send redundant information. Different position-indicating devices (GPS, LORAN, etc). may send slightly variant Lat/Lon values. Without prioritized inputs, the boat icon repositions with each valid position string.

Data from the highest-prioritized device is used first. If the primary device stops sending position information (for a user-specified period of time), the software automatically switches to the next prioritized device. If no valid position is received, it will switch to **Dead Reckoning** mode.

To Add a Device to Port Priorities

1. Click **Add...**
2. From the Add Device window, select a COM Port, the Device type that is connected to that Port, the Data Type output by that device and a Time Out value for that device.
3. Click **OK** to add this device to your Port Priorities window.
4. Add all connected hardware devices in this manner. Multiple devices may be connected to the same COM Port if they transmit different data sentences.
5. When you have completed adding all devices, use the arrow keys on the Port Priorities tab to establish a hierarchy for the data from each device.

Radar Tab

To edit your radar settings, the radar (or dual radars, for Admiral users) you wish to interface with must be installed, powered on and connected to the network or PC. You also must have already run the Radar Setup Wizard to detect and name accessible radar units. Once your radar(s) are connected, set up and named, the **Tools | Options** menu Radar Tab will provide you with per-Radar settings options.

Use the Radar Selection field in the upper left-hand corner to highlight the name of the Radar you wish to configure, then use the option settings configure each Radar. Radar settings include:

- **Auto Range Links With** - Synchronizes all zoom in chart views to the same resolution. Select Chart with Overlay or All Charts.
- **Keep Range Setting** - Yes keeps current setting, No resumes defaults per session.
- **Suppress Echoes Around Boat (radius)** - Select range to dampen radar

echoes around your boat or No to disable.

- **Show Ghost Cursor** - Yes shows cursor location on inactive view.
- **Degree Values on Radar Rings** - Show the degree values on your radar ring display.
- **Vessel Centric Bearings** - Choose from Relative Clock Dial, Relative Degrees or Absolute Degrees. Determines how bearing is shown.
- **Radar Text Banner** - Choose from None, Full or Boxed Banner text in chart overlay.
- **Radar Resolution** - Set resolution of the radar.
- **Image Clipping** - Select a circle or square to display radar output (square setting provides somewhat broader radar scope).
- **Always Open Radar Display** - Yes to open Radar View on startup, No to disable.
- **Full Screen NavView Radar Console** - None, Left or Right Side. Select where to display Radar settings in NavView Full Screen Mode.
- **Open Radar ToolBars with Radar Display** - Yes for automatic launch of Radar ToolBars, No to disable.
- **Range Ring Color** - Select a Range Ring Color.
- **VRM/EBL Color** - Select a VRM (Variable Range Marker)/EBL (Electronic Bearing Line) Color.
- **Guard Zone Color** - Select a Guard Zone Color.
- **Radar Text Color** - Select a Text Color.

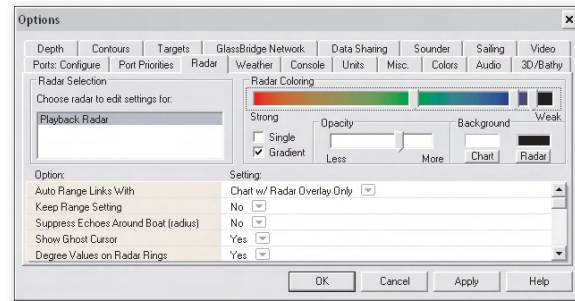


Figure 8.9 - Tools | Options - Radar Tab

- **Automatic Double Speed** - Defaults is "Disabled". You can select a SOG minimum at which the radar output speed will increase to double-time. When SOG drops below that rate for 8 seconds or more, radar output

speed reverts to normal-time.

- **Radar Coloring** - Choose either single or gradient coloring and select a color for up to 4 range settings of reception (Strong to Weak).
- **Opacity** - Select the opacity or transparency of objects detected by your radar and showing on the charts.
- **Background** - Select the background for your chart and radar.

In use, you can toggle between radar units by right-clicking on the radar display and clicking **Select Radar**.

Weather Tab

The Weather Tab is where you configure how weather graphics will appear when overlaid on the charts. Before using this tab, you must select a Weather Provider (see **Chapter 13 - Weather and Wind**).

The following are the options available from the Weather Tab:



NOTE: Not all of these options are available with all weather providers.



REMEMBER: You must purchase and install the correct weather hardware in order to display weather data from SkyMate or XM/WxWorx.

- **Weather Provider** - With Jeppesen Marine's weather partnerships, you can receive weather updates from Jeppesen Marine WeatherMail, SkyMate, GRIB or XM/WxWorx.



NOTE: When you change Weather Providers, it may take a few minutes before data from the new Weather Provider displays on-screen.

- **Pressure** - Barometric pressure can be displayed as contour lines with labels or as a color gradient. Options are **Filled** or **Line**.
 - **Frequency** - This refers to the number of barometric pressure contours that you want to show. The options are 2 Mb or 4 Mb.
- **Radar Opacity** - Radar weather overlay can be made more or less transparent with this setting. Options are **25%**, **50%**, **75%** or **100%**.
- **Satellite Opacity** - Satellite (cloud cover) overlay can be made more or less transparent with this setting. Options are **25%**, **50%**, **75%** or **100%**.
- **Wind** - Wind can be displayed as arrows or as wind barbs. Wind barbs are meteorologically correct wind symbols. Wind is coming from the cardinal direction of the line toward the tip. The feathers on the end signal the wind speed.
- **Current** - Ocean Currents can be shown as Arrows or Hollow Arrows.

- **Sea Surface Temperature** - Can be shown as Line Contours (transparent contours with temperature labels) or as Filled Contours.
- **Sea State** - Also referred to as wave height, these can be shown as transparent Line Contours or Filled Contours.
- **Swell** - The swell is depicted as Arrows or Hollow Arrows.
- **Storms** - Can show Maximum Information such as the storm name and history and a circle indicating wind strengths or Minimum Information.

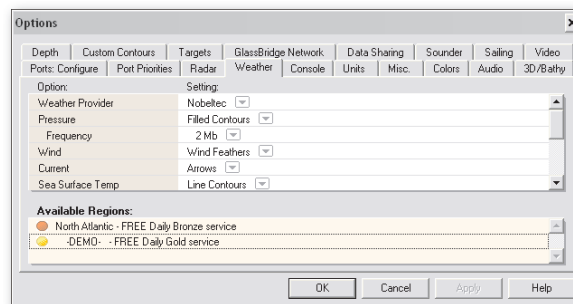


Figure 8.10 - Tools | Options - Weather Tab

- **Apparent Wind Angle (AWA)**. This is the way that the wind is impacting your ability to navigate, factoring in your speed, direction, currents, etc.
- **Theoretical (True) Wind Angle (TWA)**. This is the actual data about wind without accounting for bearing, speed, etc.

Console Tab

The Console Tab controls which information is displayed on the PlanView Console Display. The Console Display contains small information panels which can float or be docked in any position on the Console. Select which panels to display from **Tools | Options | Console**.

To display a Console panel, place a check-mark in the check box next to the item in the **Display on Console** list.



REMEMBER: You must also have the appropriate hardware for any hardware-related panels. For example, if you choose to display the Water Temperature panel, you must have an NMEA compatible water temperature sensor connected to the PC.

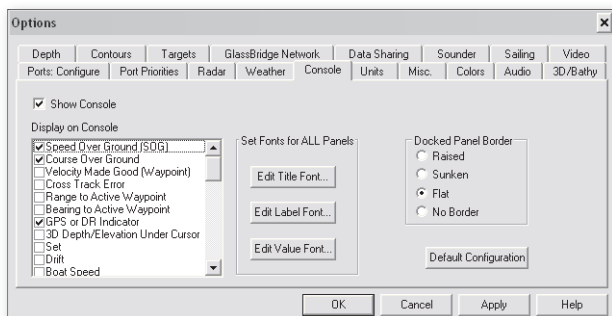


Figure 8.11 - Tools | Options - Console Tab

- To configure the fonts for all panels, use the **Set Fonts for ALL Panels** buttons. To configure the font for an individual panel, right-click on that panel in the Console Display (not Tools | Options | Console) and choose **Change Font**.
- You may also configure the **Docked Panel Border**, which controls how panel borders will appear onscreen: Raised, Sunken, Flat or No Border.
- The **Default Configuration** button resets all panels to the default settings.
- Changes you make will take effect once you click either **OK** or **Apply**.
- To move and dock panels on the Console, drag and drop the panel into place.
- To remove a panel, drag and drop the panel off of the Console, then close the panel using the "X" in the corner. *This cannot be undone.*

Units Tab

Use the Units Tab to change the units of measurement for Speed, Depth/Length, Liquid Volume, Distance and Temperature displayed in the software. Options are metric, nautical and U.S. units of measure, including Statute Miles for Distance.

The Distance (Long Units/Short Units) setting is designed to aid with both long-range and short-range settings. From **Tools | Options | Misc**, select **Yes** from the **Use Far Distancing** option.

Measurements, once set, are displayed throughout Nobeltec Navigation Software according to your preference.

Misc. Tab

The Misc. Tab of the Options Menu is where you configure usage settings. Options and brief description are listed below. For most of these settings, **Yes** means "activate" and **No** means "disable". Occasionally, there may be an alternate option such as **High**, **Medium** and **Low**.

- Confirm Deleting Objects.** Requests confirmation of each deletion.
- Ask for Name of Objects.** Enables the naming prompt.
- Automatically Select Next Chart.** Automatically opens the adjacent chart when an object moves beyond the edge of the current chart.
- Automatically Turn on DR if No GPS.** If the positioning devices fail, vessel icon will continue to move according to last known values.
- Automatically Activate Next WP Upon WP Arrival.** Automatically activates the next waypoint as you move within range.
- Bring Nobeltec on Top When an Alarm is Triggered.** This option will make Nobeltec the active window whenever an alarm event occurs.
- Display Screen Tips on Charts.** Turns on mouse hover Tool Tips.
- Automatically Install All Detected Charts.** Tells the software to look for and install uninstalled charts from the DVD. If you want to run the charts from the hard drive, you must install them manually.
- Vector Chart Symbol Format.** Use this option to switch between ECDIS (Electronic Chart and Display System) styled marks or NOAA.
- Confirm Hiding Object.** Enables a prompt before hiding an object.
- Show Cross-Hair When Creating Route.** Displays extension lines while creating routes.
- Show Direction Arrows on New Objects.** New routes that you create will have direction arrow on the route leg.
- Show Lat Lon as Default Mark Name.** Displays Lat/Lon as Mark Name if Yes is selected.
- GoTo Lat Lon Adds a Mark.** Automatically creates a mark at Lat/Lon if Yes is selected.
- Use Near/Far Distancing.** Changes short distances (9 meters or less) to display as meters or yards (based on Distance Unit selected).
- Use Transfer Wizard for GPS Transfers.** Allows you to choose between GPS/Port Setup Wizard and upload/download tool (for older GPS's).
- Enable Virtual Keyboard.** Virtual Keyboard will appear if you double-click in a text box. For users who do not have a keyboard at the helm.
- Default for Opening Photo Windows.** Chart Blend or Stand Alone.

- **Popup Transparency.** Sets the transparency level of any popup menu or dialog box. Choose from High, Medium or Low.
- **Text Highlighting.** Displays yellow region behind text onscreen.
- **Rotate Range/Bearing Leg Text.** Aligns text with the route leg.
- **Object to Trace in T&C NavBar.** Select Vessel or the active Mark.
- **Distance to Search for T&C Stations.** Choose from 3, 10, 25 or 100 km.
- **Display Current Warning Dialog.** Indicates whether or not a warning message appears when currents over 3 Kts are encountered while performing calculations in the ETA calculator.
- **Show Distance Across Instead of Scale.** Shows actual distance across the chart window.
- **Reset Passport Layers on Startup.** Resets to defaults at each startup.
- **NavView Snap Back Timer (Admiral only).** Determines how long before NavView re-centers on the boat.
- **Enable Warning Indicator Flashing.** Indicates whether or not the Warning Indicators will flash when an important event happens.
- **Scaling User Nav Objects.** Use this option to scale the user objects with the chart or to always draw them at full size.
- **Show Mark Names.** Enables or disables display of Mark Name on chart.
- **Disallow Mark Text Dragging.** Yes locks mark annotations, No unlocks.
- **Always Lock New Marks.** Yes to lock, No to disable.
- **Always Start Program in NavView (Admiral only).** Yes for NavView, No to disable.
- **Recommended Route Line Width.** Options are Normal or Thick.
- **Show Overzoom Warning Lines.** Yes to show lines, No to hide.
- **NavView Auto-Hide Time (Admiral only).** Gives you the option to automatically hide NavView menu button and the InfoBar after a set period of time.

Other Features of the Misc. Tab

You can set the default waypoint arrival radius (initial default = 0.5 NM) for all waypoints using the Misc. Tab. To adjust this value, click on the **Set Default Waypoint Arrival Distance** button. A dialog box will appear requesting the new arrival radius. This performs the same function as the Waypoint Arrival Alarm (see **Alarm Tab**).

You can choose default Mark, Event Mark and Route Mark icons from their respective drop-down lists; set default fonts for all objects; and set the chart scroll speed using the **Set Chart Scroll Speed** button.

Colors Tab

The Colors Tab allows the user to set default colors for inactive routes, the active route, tracks, boundaries, range/bearing lines and the recommended route.

To change the default colors:

1. Click on the Colors Tab in the **Tools | Options** menu.
2. Next to the desired choice (i.e. routes, tracks, etc.), click the drop-down arrow next to the menu item to display the default color palette.
3. From the color palette, select a color.
4. Click **Apply** to save all changes or **OK** to save and close this window.

Audio Tab

Audio Reports provide periodic, verbal reports about any of the data types selected in this Tab. In order for Audio Reports to work, your PC must be equipped with a sound card and speakers. Additionally, devices that provide data, such as a depth sounder, must be installed correctly before you can hear data reports for that object.

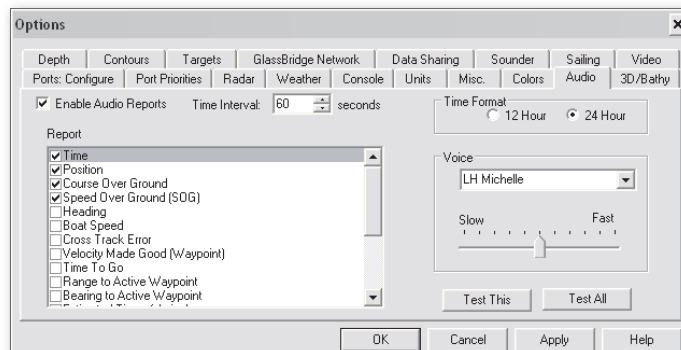


Figure 8.12 - Tools | Options - Audio Tab

To configure an Audio Report:

1. Check the **Enable Audio Reports** box.

2. Input the time interval (in seconds) requested between report.
3. Select a Time Format for the Audio report (12 or 24 Hour Clock).
4. Place a check-mark next to each report type you would like to receive.
5. Select a Voice type from the drop-down menu and a voice speed from the speed slider bar.
6. Test the reports you have selected by clicking **Test All**. To test a single audio report, select the report type and then click **Test This**.
7. Click **Apply** to save all changes or **OK** to save and close this window.

3D/Bathy Tab

The 3D/Bathy Tab controls 3D and Bathymetric (sea floor topography) window appearance. Options and a brief description are listed below.

- **General Travel/Animate Route Speed.** Increase or decrease the panning and flying speed of the 3D window and animated Route (speed can also depend upon the speed of your computer processor).
- **Sky.** Select Sky colors from Daylight, Twilight, Sunset or Disabled.
- **Water Style/Transparency.** Select from various water layer options.
- **Terrain.** Choose terrain rendering options (Grid, Array or Overlay).
- **Solid Terrain Color.** Select the solid color filling in the wire grid.
- **Terrain Grid Color.** Select the color of lines overlaid on the color array.
- **Boat Type.** Select the vessel type to appear in the 3D window.
- **Memory Usage.** Choose between Minimum and Maximum.

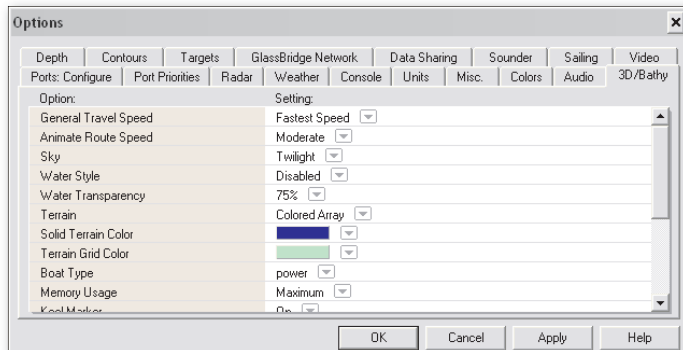



Figure 8.13 - Tools | Options - 3D/Bathy Tab

- **Keel Marker.** Select desired depth for the keel marker.
 - **Keel Marker Color.** Select the color of your keel marker. This is the color the keel marker appears when you are in a safe water depth.
 - **Keel Marker Alarm Color.** Select the color of your keel marker when it is too close to the terrain.
 - **Alarm Depth Margin.** Specifies the thickness of your keel marker as well as the depth to set off the keel marker alarm.
 - **Enable HW Acceleration.** Yes to accelerate graphics/No to disable.
 - **Open/Close 3D ToolBars with 3D Window.** Yes to open.
 - **Bathy Source Display 3D/Bathymap Data:** **Yes** displays the Passport Deluxe 3D high-resolution bathymetric chart data in the 3D display window. **No** disables.
 - **Bathy Source Display ChartGridding Data:** **Yes** allows you to create 3D sea floor topographic data from 2D vector charts in areas where those high-resolution sea floor charts are unavailable or to supplement existing vector data in places where the high-resolution, 3D, sea floor topographic data is available. When you select **Yes**, this data is used to build 3D representation in the 3D display window. **No** disables this feature.
-  **NOTE:** The following options only appear if you have purchased and unlocked Bathy Recorder.
- **Bathy Source Display Bathy Recorder Data:** Yes displays your recorded data and uses that data to build 3D representation in the 3D display window, No disables.
 - **Bathy Recorder: Apply Tidal Offsets:** This setting applies a tidal offset to your data, allowing for changes in currents and tides during recording. Default is Yes. If the option is set to Yes, when any depth data point is received by the 3D engine, the offset of the closest tidal station (as determined by settings in the **NavBar | Tides & Currents** tab) is applied to the depth. For example, if the Sounder or Depth Finder device reports depth at 12 feet and the closest tidal station shows a high tide at 4 feet, the actual depth is stored as 8 feet. If there is no tidal station within 50 nautical miles, no tidal station influence is considered.
 - **Bathy Recorder: Frequency of Data Collection:** Use this setting to control how often Bathy Recorder will record a data point. Options are **every meter**, **every 5 meters**, **every 10 meters**, **every 20 meters** and **every 50 meters**. Default is **every 5 meters**. More frequent data collection results in larger Bathy Recorder files and higher detail.

However, if performance of your computer becomes an issue, consider using a longer frequency.

- **Bathy Recorder: Frequency of Screen Refresh:** This drop-down list allows you to select how frequently the 3D window and chart window screens will have the bathymetric chart data refreshed. Options are **once/second, every 5 seconds, every 10 seconds, every 15 seconds, every 30 seconds, every 60 seconds** and **at Startup only**. Default is **every 5 seconds**. In cases where the computer system is already taxed, the frequency of screen refresh should be at longer intervals to prevent pauses in the system.
- **Bathy Recorder: Transducer Cone Angle (50 kHz or 200 kHz):** These options should be set to reflect the actual sonar transducer cone angle that is being used to provide the software with depth information, based on the frequency of your Transducer. This information transmits on a point-by-point basis the influence range of each recorded depth. Influence range is also a function of the depth. For example, in 100 m (328 feet) of water, a 45° cone angle will result in a range of influence of about 40 m (131 feet) around the collected sample, whereas a 6° cone angle would only have a 5 m (16 feet) range of influence. The minimum influence range is 1 m (3 feet), which means that in shallow water, a narrow cone angle may produce a wider impact than expected. For example, in 10 m (33 feet) of water, a 6° cone angle should have an influence range of 0.52 m (1.7 feet), but is rounded up to 1 m (3 feet).

Jeppesen Marine highly recommends checking the documentation that came with your sounder/depth finder transducer to determine the correct transducer cone angle setting.

Options for this setting are: **6 Degrees, 9 Degrees, 12 Degrees, 15 Degrees, 22 Degrees** or **45 Degrees**. Default for a 200 kHz Transducer is **22 Degrees**; default for a 50 kHz Transducer is **9 Degrees**. Changes made to this option impacts only newly recorded data, not previously recorded data.

- **Bathy Recorder: Depth when frequency changes (50 kHz or 200 kHz):** Options are every 10 units, (based on **Tools | Options | Units** settings), from 30-500. When the established depth is crossed, the cone angle in use is changed.



NOTE: All units of measure are adjustable from **Tools | Options | Units**.

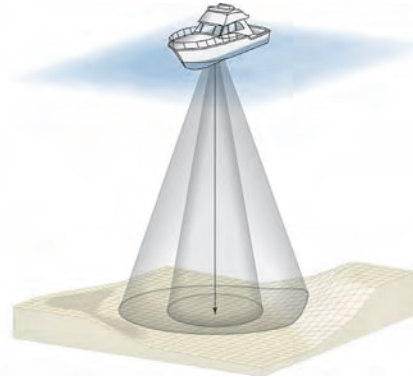


Figure 8.14 - Transducer Cone Angle Differences

- **Bathy Recorder: Rendering Exaggeration:** Normally, a sample has a range of influence dictated by the depth and the transducer cone angle. You can use this option to exaggerate that rendering to increase the range of influence of a Bathy Recorder sample. In essence, this setting causes your depth recording to draw with a wider or narrower calculation. Since this is a subjective setting, you are encouraged to experiment with the value to see what style and setting you prefer. Changes to this option impact both new and previously collected data.

Options for this setting are: **Standard** (default), **2x**, **4x**, **8x** and **Maximum**.



WARNING: There may be a significant change in depth beyond the transducer cone angle that could prove materially hazardous. Increasing rendering exaggeration "fills in" more areas and may look more aesthetically pleasing, but can mask changes in depth outside the transducer cone and therefore should be used with caution.

- **Bathy Recorder: Show Raw Points on Chart Window:** This option allows you to have Bathy Recorder data always rendered in black, rather than the color dictated by the Shaded Relief color scheme in the chart window. Yes turns on the display black-only bathymetric data points on your chart window, No defaults to the shaded relief color scheme. No is the default setting.

This feature permits you to see where you have and have not captured data. There is no harm in adding additional data to an area and, in fact, can improve your overall sea-floor map of any area over time.

- **Bathy Recorder: Duplicate Data:** This setting controls how Nobeltec Navigation Software handles overlapping Bathy Recorder samples. Options are **Average Data Points** or **Use Newest Data Point**. **Average Data Points** is the default setting and causes all overlapping data to impact the final depth value. **Use Newest Data Point** causes data from only the latest Bathy Recorder file to be used. Data from within the same file is always averaged.

Depth Tab

If you are using Passport Charts, Nobeltec Navigation Software allows you to change the color of depth soundings on Passport vector charts based on a user defined range. Depths have been grouped into six (6) depth ranges.

This feature has several uses. For example, you may choose to mark all soundings 10 feet and fewer in **red** while leaving everything deeper in black. Onscreen, danger areas will be an obvious cluster of **red** depth soundings.

To change depth colors and ranges:

1. Right-click on the color region you wish to change.
2. In the color selection pop-up menu, select the color then click **OK**.
3. Repeat as desired for each range.
4. To change the range values, click and drag the divider left or right to adjust the setting. Click and drag a divider off the color bar to remove it entirely. Place the divider back on the color bar by clicking anywhere between two dividers - limit of five total dividers, for six total depth ranges.
5. Click **Apply** to save all changes or **OK** to save and close this window.

Changing Depth Fonts

You can adjust the font and font size for all of the depth soundings on Passport vector charts. To change the font settings:

1. Click **Depth Font**.
2. Choose a font, style (bold, italic, etc). and size from the displayed list.
3. Click **OK**.

3D Depth Settings

The 3D color palette is re-calculated only when depth changes more than 10% or 10 feet (whichever is greater).

A Color Legend can be displayed in the upper right-hand corner of the 3D chart window pane. Choose to display or hide the Color Legend using the right-click pop-up menu in the Chart window pane.

Contours Tab

Use this tab to create custom contour lines on land and/or water based on data from 3D sea floor topographic charts. This feature works best with Passport Deluxe charts, which contain Jeppesen Marine's high-resolution sea floor depth data.

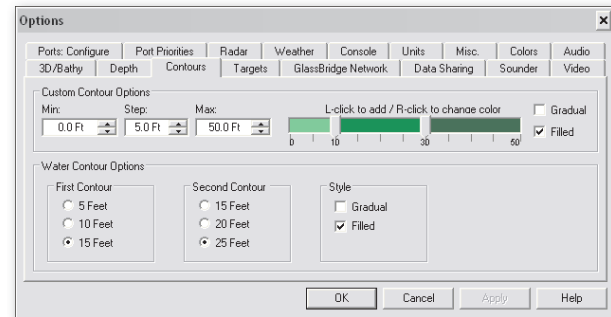


Figure 8.15 - Tools | Options | Contours Tab

Custom Contour Options

The Custom Contour Options section of the **Tools | Options | Contours** tab contains settings for establishing and shading Land contours.

- **Min** is where you set the minimum land elevation from which contouring will begin.
- **Step** is where you set the distance to place between contour lines.
- **Max** is where you establish the maximum elevation of land contours to show on the chart.
- The **Color Strip** to the right of the elevation settings is used to establish colors for specific elevations.
- **Height markers**—the gray bars on the color strip—can be dragged back and forth to your specifications, affecting the Land Contour coloring for the range specified. Add height markers by left-clicking on the color strip. Drag a height marker off the strip to remove it.
- To change a Land contour color, right-click on the color strip at the

location where you want to change the color. A standard Color window opens, from which you may select a color for the range you selected in the color strip.

- Use the Gradual or Filled check boxes to make the color behavior gradient, to completely fill the contour with a single color, or both.

Water Contour Options

Water Contour Options can be used to set up to two separate contours at specified depths. This tool gives you a sense of changing water depth as you navigate shallow waters. To set basic Water Contours:

1. In the Water Contours Options field, set the depth for the First Contour line (5, 10 or 15 feet).
2. Set the depth for the Second Contour line (15, 20 or 25 feet).
3. Use the Gradual or Filled check boxes to make the color behavior gradient, to completely fill the contour with a single color, or both.
4. Click **OK** to close the Options window.
5. Click the down arrow next to the Depth Contours tool on the ToolBar and select **Show Custom Contours** to see your changes onscreen.

Custom Contours Tab (Bathy Recorder Only)

When the Bathy Recorder product is installed, Custom Contours become available. The Contours Tab is renamed Custom Contours and now contains one default theme and six customizable contour themes. The Contour button drop-down menu on the ToolBar will also contain custom contour information.

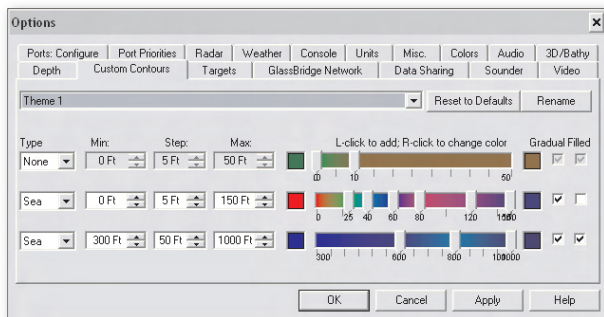


Figure 8.16 - Tools | Options | Custom Contours Tab

Customized contour themes give you the ability to have clearly differentiated contours that are quickly visible on-screen at a glance for many more subtle depths and heights than the standard contours option provides. This feature is especially useful if there are multiple depths that you are fishing along, but wish to avoid cluttering your screen by displaying all of them at once.

To begin customizing contour colors:

1. Select one of the Themes (1-6) from the Theme drop-down menu.
2. Select a Type from the Type drop-down menu.
3. Set your Minimum Land or Sea height.
4. Set the distance, or "Step" you wish between contours.
5. Set the Maximum depth for this contour.
6. In the Color Strip, set your range colors and height marker placement.
7. Use the Gradual or Filled check boxes to make the color behavior gradient, to completely fill the contour with a single color, or both.

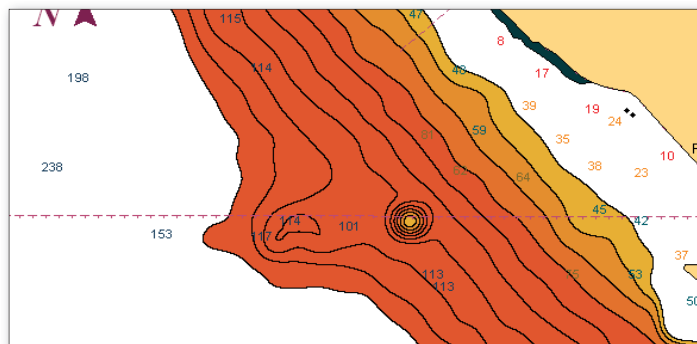


Figure 8.17 - Custom Contours

- Depths can be dragged back and forth to your specifications, affecting the coloring.
- Click your mouse in the color strip to add a depth/height marker or drag the marker off-screen to remove it.
- Use your right mouse click to select a customized color from the provided swatches.
- Click **Rename** to change the name of your theme to one of your own choosing.
- Click **Reset to Defaults** to return all height and color values in the current

theme to out-of-the-box settings. *This does not change the Theme name back to the default name if you have renamed it.*

Color swatches allow you to quickly select a Start and End color for contour and the standard behavior of the color slider. You may select to fill the color or not and to make the color behavior gradient or not.

Targets Tab

If you have compatible ARPA/MARPA Radar(s) (*Admiral only*) or AIS device(s) connected to your PC via an NMEA connection, any target detected by these devices can be displayed on your Passport vector charts with their pertinent information. Additionally, if a DSC radio is connected to your PC, you can track other vessels similarly equipped. Admiral users who own SeeTrac® Tender Tracking™ hardware can also purchase the Tender Tracker Plus Pack to track affiliate objects, such as jet skis or wave runners using Admiral software capabilities.

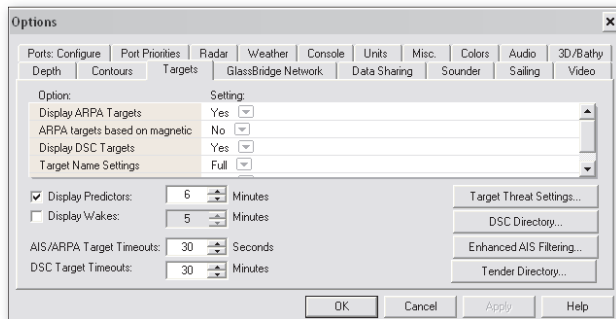


Figure 8.18 - Tools | Options - Targets Tab

Target Tracking

Setup specifications for detected targets on the Targets Tab. Options and a brief description are listed below.

- **Display ARPA Targets.** (*Admiral only*) **Yes** displays ARPA targets and **No** disables.
- **ARPA Targets Based On Magnetic.** Choices for this option depend the type of heading sensor connected to your radar. For Magnetic heading sensors, select **Yes**. For True North sensors, select **No**.
- **Display DSC Targets.** **Yes** displays DSC targets and **No** disables.

- **Target Name Settings.** Determines how the target name will be displayed (Short Name, Full or None). Default setting is Short.
- **Display targets on radar display.** **Yes** displays targets, **No** disables.
- **Display Predictors.** When selected, this option will display a course predictor line in minutes for all detected targets.
- **Display Wakes.** Similar to a predictor line, the Display Wakes option allows you to see a historical track of where the target has been.
- **AIS/ARPA Target Timeouts.** ARPA targets normally transmit reports every few seconds. Select how long an ARPA or AIS target will remain on your screen between reports. If the software does not receive a report during this set amount of time, it will be removed from the display.
- **DSC Target Timeouts.** DSC targets only transmit data when requested by another DSC-equipped marine radio. Select how long a DSC target will remain on your screen between reports. If the software does not receive a report during this set amount of time, that target will be removed from display.
- **Target Threat Settings.** Use this button to detect potential threats based on information received from ARPA, MARPA and AIS targets. If a target meets criteria for this setting, the target will render in **red** and a warning message will be shown.
 - **Detect Threats.** Check this box to look for threats, as determined by your CPA and TCPA settings. When there is no check-mark in this check box, the Alarm, CPA and TCPA options are disabled.
 - **Audible Alarm When Threat Detected.** Check this box to receive an audible alarm when CPA or TCPA meet safety zone criteria.
 - **Closest Point of Approach (CPA)** - Used to determine the safety zone area around your vessel - default is 0.5 NM. If a target enters into the area specified by this setting, it is considered a threat.
 - **Time to Closest Point of Approach (TCPA)** - Sets a threshold amount of time until the Closest Point of Approach.
- **DSC Directory.** The DSC directory (**Figure 8.19**) is where you can input the MMSI Number and a description (or name) of vessels polled with your DSC radio. The description you input will appear on your charts instead of the MMSI Number. These settings can be saved for future use.

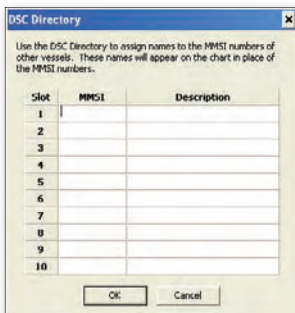


Figure 8.19 - DSC Directory

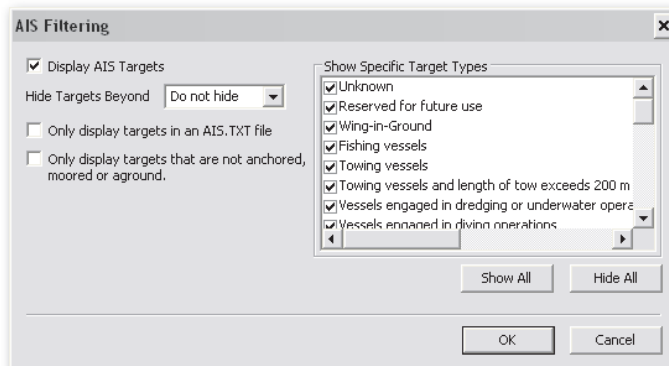


Figure 8.20 - AIS Filtering

- **AIS Target Filtering.** AIS targets can be filtered for type, distance, moorage state, etc. The **Targets NavBar**, **NavView Target ToolBar** and **Tools | Options | Targets** all contain a link to open the AIS Filtering window.
 - Display AIS Targets. Controls whether any AIS targets are displayed in the Chart window pane or Targets NavBar. When unchecked, all subsequent options in this window are disabled.
 - Hide Targets Beyond. This option allows you to select a maximum distance range for detected AIS targets to display. Targets whose distance exceeds the selected setting will not display in the Chart window pane or Targets NavBar. Options are **Do not hide**, **5**, **10**, **20**, **40**, **60** or **80** units of measurement. Default is **Do not Hide**.



NOTE: All subsequent AIS Filtering features are *Admiral Only*.

- Only display targets in an AIS.TXT file. When selected, only targets whose MMSI numbers are listed in the AIS.TXT file located in C:\Program Files\Nobeltec\Visual Series are displayed. This setting enables you to track specific, known targets while ignoring unknown targets.
- Only display targets that are not anchored, moored or aground. Removes targets from display whose reported status is anchored, moored or aground. If targets whose status is anchored, moored or aground are moving at 0.2 Kts or higher, their status is ignored and they will continue to display. Default setting for this option is Off.
- Show Specific Target Types. Select from the displayed list which Target types you wish to display in the Chart window pane or Targets NavBar. Targets whose type is not checked in this field will not display.

- **Tender Directory.** The Tender Directory manages all tenders (wave runners, jet skis, etc.) that are transmitting data to Nobeltec Navigation Software via a Seetrac® Tender Unit (STU). Use the Tender Directory to input the Tender ID, Description, Channel the Tender is broadcasting on and the duration for the Seetrac Base Unit to listen to that Channel. Up to 99 Tenders may be tracked at a given time. See **Chapter 25 - Tender Tracker** for more details.

- **Managed Mode.** Place a check-mark in this check box to configure Channel and Duration settings.



NOTE: Tender Tracker has two modes: Autonomous and Managed. Channel and Duration only function in Managed Mode.

- **Tender ID.** Input the numeric value for the Tender you wish to track.
- **Description.** Input a description of the Tender tracked on this channel. The description you input will appear on your charts if you select to display Target Names.
- **Channel (Managed Mode only).** Select the channel this Tender is using to transmit data (1-17). Default is Channel 1.
- **Duration (Managed Mode only).** Select a duration for this Tender's signal from the drop-down menu (0-30). Default is 5 seconds.

GlassBridge™ Network Tab (Admiral Only)

This Tab is used to configure your onboard network when using Admiral. See **Chapter 19 - Networking** for more information about GlassBridge Networks (GBN).

Raw and Processed Data setup on the Data Sharing Tab help you configure GBN NMEA sharing.

- **Network Identity.** The network ID will default to the name of the computer. If you would like to change the name, click in the dialog and enter a new name.
- **Enable Advanced Networking.** Place a check-mark in this check box to turn on the GlassBridge Network features.
- **Accept Active Waypoints from other Computers.** When navigating, it is very useful to see the active waypoint on all computers on the GlassBridge Network. When you place a check-mark in this check box, whenever another computer creates or moves an active waypoint, this computer will update accordingly.
- **Chart Sharing** enables you to share charts with other computers on your GlassBridge Network. Choose from one of the three available Chart Sharing options (Ask, Yes or No). Selecting **Ask** will prompt the user each time the computer is started whether or not to share charts. **Yes** will share all Passport Charts each time the program opens and **No** turns Chart Sharing off.
- **Radar Sharing.** If you are using an InSight Radar, in order to share radar data on the network, select **Yes** from the Radar Sharing drop-down menu. However, if you purchased a Nobeltec InSight® Radar 2 (IR2) or an InSight® Radar 2 - Black Box (IR2-BB®) and it is connected to your system, Radar data is shared on the network automatically. No additional GlassBridge Network configuration is necessary in order for this data to be propagated on the network.



NOTE: InSight Radar users will need to run the Radar Wizard on each computer that needs to view radar.

- **Sounder Sharing.** If you have purchased and installed Nobeltec InSight Sounder™, you can share Sounder data to any computer connected to the GlassBridge Network.

All systems attached to the GlassBridge Network will see all data sent on the network by the InSight Sounder. Therefore, any Sounder window open on any PC will mirror the Sounder window(s) on all other PCs on

the network. In Live and Demo mode, all "pings" are shared across the network. In Playback mode, pings are not shared.

InSight Sounder users not connected to Sounder via an RS-422 cable will need to run the GPS/Port Setup Wizard on each computer that needs to view Sounder data. Refer to the InSight Sounder User's Guide for further instructions on using the GPS/Port Setup Wizard.



NOTE: The following Sounder settings are NOT shared across the network: Sounder COM port configuration, UDP port configuration, colors and all options set using the Tools | Options | Sounder Tab. **EXCEPTION: Tools | Options | Sounder Tab: Transducer Offset, Temperature Calibration, Speed Calibration and 50 and 200 kHz Gain Calibration** settings can be shared across the network.



NOTE: If you have Admiral installed on Windows XP and Windows Vista, when you close the version of Admiral that was running on Windows XP the Vista Windows Firewall message "some feature of this program may be blocked" appears. Click OK to continue.

Share Radar Targets. After acquiring MARPA Radar targets using Nobeltec Admiral, it is helpful to share these targets with the other computers on the GlassBridge Network.

- **Routes and Marks Home - location for all Nav Objects.** Prior to sharing navigation objects (routes, marks, boundaries, etc) between computers on the GlassBridge Network, one computer must be designated the Routes and Marks Home. To make this computer the "Home" computer for Routes and Marks, place a check-mark in this check box and select whether you will accept Nav Objects created by other computers from the **Accept Nav Objects from Other Stations** drop-down menu.

To copy objects to and from the Marks and Routes Home:

1. Click **File | Navigation Objects | Import {or Export} Nav Objects.**
2. At the top of the dialog click to choose the **Marks and Routes Home in Import From/Export To** drop-down list box.
3. Select the objects that you would like to transfer (or select Import All or Export All).
4. When finished, click **OK.**

Data Sharing Tab

This Tab is used to determine how data (NMEA, Ockam® or B&G®) is shared between computers connected to a network using an Ethernet (TCP/IP), such as by the GlassBridge Network (see **Chapter 19**).

The two types of data that can be shared are Processed and Raw Data.

Raw Data comes into the computer from any NMEA device. GPS position is an example of Raw NMEA Data.

Processed Data is produced by the Admiral program. In a situation where you have more than one GPS connected to one of the computers on the network, typically port priorities are used to "prefer" one GPS over another. This official type of information about the vessel is referred to as Processed NMEA Data or the Nobeltec Packet. By default, Admiral will share Processed Data on the GlassBridge Network. By setting up Admiral in this way, you do not have to set a priority on each of the other computers on the network.

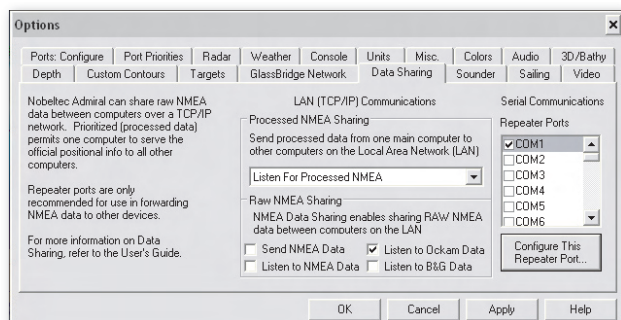


Figure 8.21 - Tools | Options - Data Sharing Tab

Repeater Ports designate the COM ports that will be used to output or repeat all of the data that your software receives. Repeater ports should only be used to forward data to other devices.

Sounder Tab

If you have purchased a Nobeltec InSight Sounder and unlocked the Sounder features with the Sounder Unlock Code, an additional tab is displayed in the **Tools | Options** menu to adjust Sounder settings. For complete information regarding InSight Sounder, please refer to **Chapter 22 - Sounder**.



NOTE: All units of measure are adjustable from **Tools | Options | Units**.

- **Open Sounder Display at Startup** – Indicates whether or not a Sounder Display should be created whenever Nobeltec Navigation Software is started. Default is Yes.
- **Histogram Speed** – Speed at which the sounder returns are scrolled across the screen. Default value is 1:1.
- **Display A-Scope** – Default is Yes.
- **Display Depth Scale** – Indicates whether or not depth numbers appear down the right side of the Sounder Display. Default is Yes.
- **Display Bottom Line** – Default is Yes
- **Display Depth (Text)** – Default is Medium.
- **Display Boat Speed (Text)** – When enabled, the speed of the vessel is displayed in the bottom left corner of the Sounder Display. Default is Medium.
- **Display Temperature (Text)** – Default is Medium.
- **Display Temperature Graph** – When enabled, a moving indication of water temperature appears on the Sounder Display. Default is No.
- **Display Tuning Indicators** – Auto Gain, Auto Clutter and Auto Range indicators are drawn on the bottom of the screen, when enabled. Default is yes.

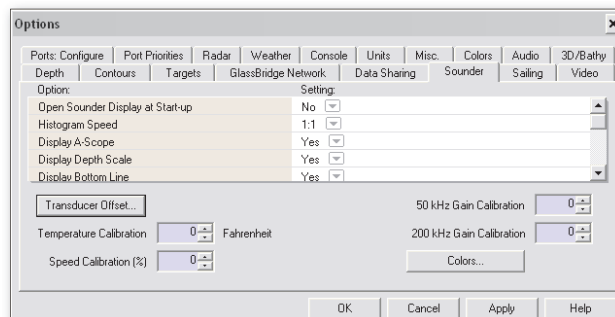


Figure 8.22 - Tools | Options - Sounder Tab

- **Show Ghost Cursor** – When the mouse cursor is moved over a Sounder window, this causes the location of the Sounder returns to be indicated by crosshairs in any chart windows that are visible. Default is Yes.

- **Open/Close Sounder ToolBars with Sounder Window** – Causes the Sounder ToolBars to open/close when the Sounder Window is opened/closed. Default is No.
- **Display Shallow Water Alarm Indicator** – Default is Yes.
- **Transducer Offset** – Use this field to indicate the vertical distance from the surface of the water to the transducer's installed location. This distance is then used to calculate actual bottom depth and for monitoring the shallow water alarm. Transducer offset is required for use with DBT and DPT NMEA sentences only.
- **Temperature & Speed Calibration** – Both temperature and speed values may need calibration. Should you be suspicious that the temperature reported is off by a degree or two or that the indicated speed is too fast or slow, use these controls to adjust the end values.
- **50 kHz and 200 kHz Gain Calibration** – Both of these controls are used to adjust the gain applied to each frequency. If you feel that one frequency or the other doesn't have the appropriate level of gain, use these controls to calibrate accordingly.
- **Colors** - From the **Tools | Options | Sounder** tab, you can access the Sounder Colors dialog box:
 - **Themes** can be selected to have all Sounder settings display in complementary colors.
 - The **Bottom Line** represents the calculated depth of the sea floor.
 - The **Shallow Water Indicator** is represented by a solid line across the Sounder Display at the level where the Shallow Water Depth Alarm is set.
 - The **Use Sea Floor Color** option can be set to Yes or No. If it is set to Yes, the Sea Floor color is used when drawing any returns beneath the bottom line. If it is set to No, the regular sounder return colors are used.
 - The **Text Color** is used for any text that is represented in the Sounder Display.

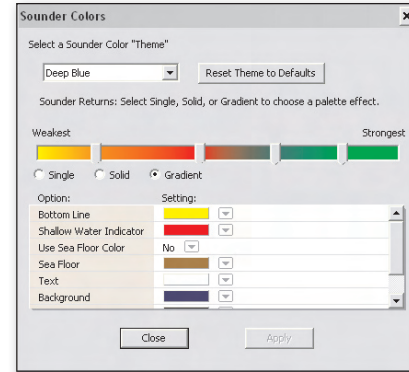


Figure 8.23 - Sounder Colors

- The **Background Color** is used to paint the background of the Sounder Display.
- The **Highlight Color** is used to outline the Text color, allowing the text to stand out better against all other colors in the sounder histogram.
- **Temperature Color** is used to paint the temperature graph.

Sailing Tab (Plus Pack)

If you have purchased and installed the Nobeltec Sailing Plus Pack for Visual Navigation Suite and Admiral, an additional tab is displayed for adjusting Sailing settings. For a complete description of the Sailing Plus Pack, please refer to **Chapter 25 - Sailing Plus Pack**.

Tools | Options | Sailing provides you with options that determine which sailing information appears in the Chart window pane.

- **Display Apparent Wind Indicator.** Options for this field include No, Small, Medium and Large. Large is twice the size of Medium and twice as far away. This indicator is updated every second. The indicator is a filled circle with the label "A" and an arrow pointing from the direction of the wind to the boat. The length of the arrow is proportional to wind speed.
- **Display True Wind Indicator.** Options include No, Small, Medium and Large. Large is twice the size of Medium and twice as far away. This indicator is updated every second. The size of the vector is proportional to wind speed. The indicator is a filled circle with the label "T" and an

arrow pointing from the direction of the wind to the boat. The length of the arrow is proportional to wind speed.

- **Display Recent True Wind Angles.** When you select this option (Yes from the drop-down menu), segments between two concentric circles surround the boat to represent wind direction over the past 10 minutes. If the wind has been primarily from one direction over the past 10 minutes, the color of that segment is a darker shade. Segments that have not had the wind as frequently are a lighter color. Recent wind segments have some transparency to minimize clutter.
- **Display Lay Lines.** These are the lay lines that toggle on and off from the active mark.
- **Display Lay Lines from Boat.** This toggles the lay lines from the boat on and off.



NOTE: Keep in mind these additional notes about lay lines:

- Lay lines adjust each second.
- Lay lines appear whenever there is an active mark.

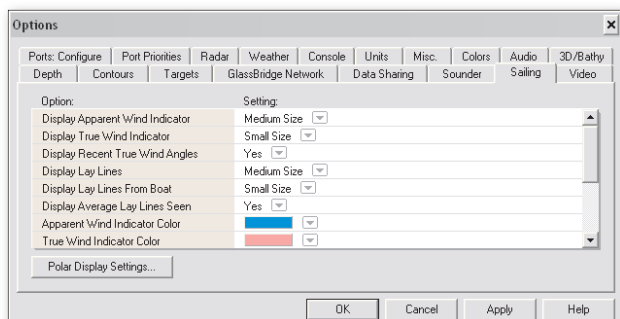


Figure 8.24 - Tools | Options - Sailing Tab

- **Display Average Lay Lines Seen.** Use lay lines to verify trends in the wind that become apparent when you track them in the Chart window. As the wind shifts and your boat adjusts heading and course, the lay lines adjust accordingly. If you select this option, Nobeltec Navigation Software tracks the average lay line seen, for the active mark, for the past 10 minutes and displays this lay line (one for port tack and one for starboard tack), with less emphasis than the regular lay line.
- **Display Time To Go (TTG) and Distance on Lay Lines.** In Admiral only,

this allows you to toggle on and off values that show the TTG and distance (in boat lengths) to the lay line. These values appear beginning at the point of intersection of the boat and mark lay lines.

- **Time To Go Calculations.** The default is Calculate Direct to Mark (Power). The other option is Calculate First Waypoint TTG Using Wind.
- **Use Set & Drift in Sailing Calculations.** When this field is set to **Yes**, Nobeltec Navigation Software calculates your lay lines using speed over water, wind angle and current. When set to **No**, current data is not included in these calculations.

Polar Display Settings

From the Tools | Options | Sailing tab, you can access the Polar Display Settings dialog box:

- **Units of Measure.** The default setting for this option uses the current speed measurement unit selected using Tools | Options | Units. The other selection is Seconds per Nautical Mile.



NOTE: All units of measure are adjustable from Tools | Options | Units.

- **Goal: Percentage of target speed.** Use this field to temporarily adjust target speed based on current conditions. This option is most beneficial if you have an inexperienced crew or modified sail confirmation and you wish to create realistic targets for performance.
- **Real Time Data.** Real Time Data options include:
 - **Auto Record Real Time Data.** When you place a check-mark in this check box, Nobeltec Navigation Software begins to collect data while underway for onscreen display. Real time data points are logged during auto record of TWS/TWD/BSP information. As you receive data for true wind speed, true wind direction and boat speed, the values are saved in a file that contains only the interpolated wind speed, the angle and the interpolated boat speed. Wind speed is rounded up or down to the nearest integer value (e.g. 1.5000 to 2.499 become 2) and the boat speed is proportionally lowered or raised. Real time data points will only appear on the polar if you select an individual wind speed in the **Wind Speeds to Display** field. If you clear this check box, no real time data is collected.
 - **Interval.** This field controls the interval at which current values are recorded. Selections include 1 second, 10 seconds, 30 seconds, 1 minute, 2 minutes, 5 minutes, 10 minutes and 30 minutes. The

default setting is 1 minute.

- **Clear Real Time Data.** Click this button to clear all real-time data. When you click this button a message appears asking if you want to continue. Click **OK** to clear all data or click **Cancel** to return to the Polar Display Settings window without clearing the data.
- **Options.** Options settings include:
 - **Polar Line.** The selected color is applied. Data points connect with a curved line that follows the expected interpolated boat speed at all angles.
 - **Polar Data Points.** The selected color is applied.
 - **Current Situation Dot.** This indicator is drawn if the polar diagram shows a polar line for the same wind speed (AWS) as the boat's current speed.
 - **Real Time Data.** This is the color of the real time data dots that are drawn periodically on the polar based on the Display Real Time Data settings.
 - **Show Boat.** This determines whether the boat and the current situation line and dot appears on the Polar display.
 - **Show Best Angles.** This toggles the best upwind and downwind angles to display optimal VMG windward and leeward. These angles appear as red lines drawn from the origin of the polar to the farthest polar speed indicated.
 - **Fill Velocity Range.** This setting determines whether the area from the polar boat speed line is filled.
 - **Fill Color.** This setting fills in the polar drawn on the Polar Display if the Fill Velocity Range selection is **Yes**.

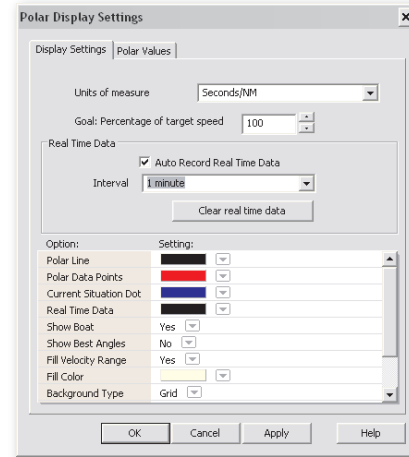


Figure 8.25 - Polar Display Settings - Display Settings tab

- **Background Type.** With this option you can customize the polar background. The choices include **Grid**, which shows the angles/boat speed circles as lines, **Gradient**, which fills in each speed range from the polar start color to the polar end color and **Alternating**, which alternates the polar start color and the polar end color from each speed range to the next.
- **Grid Color.** This is the color of the grid.
- **Polar Start Color/Polar End Color.** If using gradient or alternating, these are the colors from which the gradients or first alternating colors start or end in the velocity ranges or circles.
- **Restore Defaults.** Click this button to reset all display settings to the original, default settings that came with this Plus Pack.

Polar Values Tab

Create and manage your polar diagrams using the **Polar Values** tab. Fields available on the Polar Values tab include:

- **Active Polar file name** - The active polar file name appears. When you installed Nobeltec, no polar was selected, so the default Polar file name is "No file selected". The active polar filename is stored across sessions.
- **Polar Name** - Type the name you want to associate with this polar.
- **Load Polar File** - Click this button to browse to the folder where

the polar file you want to load is located. In the folder named InstallLocation\Polars you will see stock polar files for common boats. The file type function searches for the Nobeltec polar extension (*.spp) but you can also select All Files (*.*), which allows you to open polar files from many sailing programs. When you select a file type designed for another sailing program, Nobeltec attempts to read the file. If the file cannot be read, a message appears stating this.

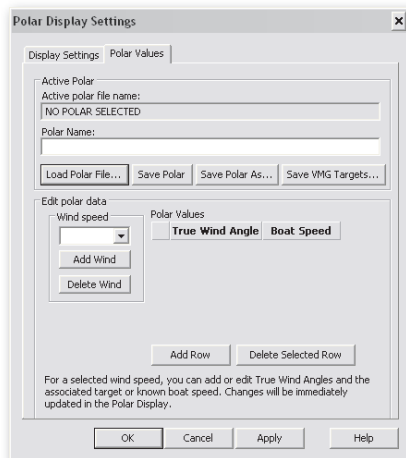


Figure 8.26 - Polar Display Settings - Polar Values tab

- **Save Polar** - Click to save any changes that have been made. A message will ask "Do you want to save this polar?" Once saved, changes made cannot be undone. Click **Yes** to save changes or **No** to return to the main Polar Display Settings window without saving changes.
- **Save Polar As** - Click to save the changes to a new polar file name. A **Save As** dialog opens with the My Polars folder as the default folder. You can, however, browse to any other location.
- **Save VMG Targets** - Click this button to save the best upwind and downwind angles to a tab delimited text file. You can import this file into Excel or another program or print it to use as a reference on deck.
- **Edit Polar Data** - You can select any wind speed that is stored in the polar file. By default, the lowest wind speed in the Polar File appears. Use the Add Wind and Delete Wind buttons to manage your polar data. There is no limit to the amount of wind speeds that can be stored in the polar file.

- **Polar Values Grid.** Use this grid to add, update or delete polar values. If all polar values are deleted, the corresponding wind speed will also be deleted. To add individual values, tab to the end of the row and a new row will appear. To delete an entry, select the row and press the **<Delete>** Hot Key or select the row and click the **Delete Selected Row** button.

Video Tab



Nobeltec Navigation Software offers support for onboard DirectX-compatible video cameras attached to your PC via USB port(s).

Users can choose from all available, connected cameras using a drop-down menu. Video feeds can be interfaced with Nobeltec Navigation Software using a Video Multiplexer Card (PCI Card) or a USB converter device, **however, best reception is provided when cameras are hooked directly to the computer.**

With streaming video feed, you can have up to four views of your immediate surroundings. Ideally, onboard cameras are designed for low-light and marine conditions. See your video camera User Guide to connect the video camera to your onboard PC. Nobeltec Navigation Software will recognize the video input device(s) automatically.

There are two ways to open the video window in PlanView:

1. Choose **View | Video | Video Display**; or
2. Choose **Video Display Tool** from **Tools | ToolBars** to leave the Video Display ToolBar button always available for use.



NOTE: Video streams can be shown in one PlanView window at a time.

9 PlanBook

The PlanBook is a tool used to help you manage Routes, Marks, Tracks and Boundaries, plan trips and estimate arrival times. See **Figure 4.7** for a detailed overview of the PlanBook Screens.

NOTE: Information in the PlanBook is based on the date/time settings of your system clock. Predictions for a specific date must be manually input.

Opening the PlanBook



In PlanView, open the PlanBook by either clicking on the PlanBook tool on the ToolBar or by selecting **Tools | PlanBook**. In NavView, you must set up a PlanBook view using the View Manager (see **Chapter 18**).

The Routes Tab

The Routes Tab of the PlanBook (see **Figure 9.1**) is a tool that can be used to create, edit and manipulate routes. In addition, it also allows you to obtain ETA's and print out reports. As shown in the image below, there are also two sub-Tabs: one that lists all of your routes, and another that provides details (or a list of the individual waypoints) for the selected route.

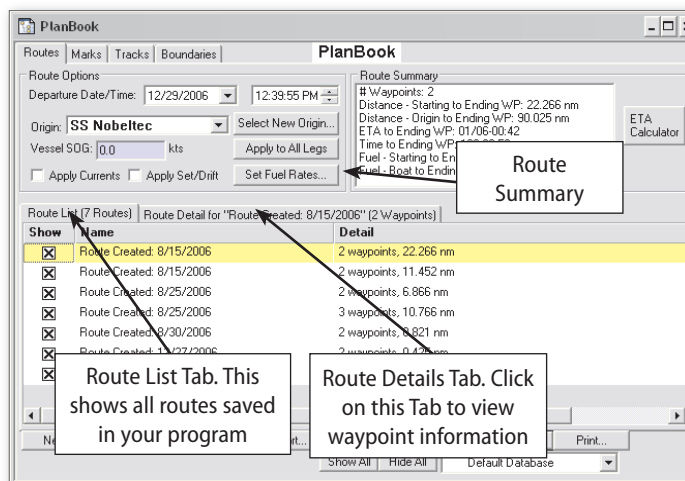


Figure 9.1 - PlanBook - Route Tab

Selecting a Route to Edit

If you have an active route and enter the PlanBook, the active route's information will be shown on this Tab in the Route Summary pane. If a route is not active, then the route list will be sorted alphabetically and the information from the first route in the list will be displayed. To select a route:

1. Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu to view the Routes Tab.
2. Click on the name of the route that you want to work with.
3. The information for this route should now be displayed in the **Route Summary** window above.
4. To edit individual waypoints, click on the **Route Detail** Tab.

Setting the Boat Speed for the Entire Route

Setting the boat speed is important when calculating an ETA for a route. To set the estimated speed for the entire route:

1. Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu to view the Routes Tab.
2. Click on the name of the route that you want to work with.
3. Enter a boat speed in the **Speed Over Ground (SOG)** text box.
4. Click **Apply to All Legs**.

Setting the Boat Speed for an Individual Leg

There may be areas during your voyage where you will be travelling faster or slower than your average speed. To figure those instances into your ETA calculations, you will need to set the speed for an individual leg (the distance between two waypoints). To set the boat speed for an individual leg:

1. Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu to view the Routes Tab.
2. Click on the name of the route that you want to work with.
3. Click on the **Route Detail** Tab.
4. From the Route Detail Tab, in the column labeled **Leg SOG**, identify the first leg that you want to change, then click on the leg speed. A gray outline will surround the value. Press **<Enter>** and then change the value. You do not need to input units.
5. Repeat for each leg speed you wish to change.

Estimating Arrival Time

Estimated Time of Arrival (ETA) is calculated based on the route segment lengths (legs) and the Speed Over Ground entered for each leg. Arrival time can start from the present time or from a user-specified time and date.

To determine ETA based on a user specified time:

1. Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu to view the Routes Tab.
2. Click on the name of the route that you want to work with.
3. In the **Route Options** field, input a departure date and time.
4. Click the **Origin** drop-down list and select the vessel or any of the previous 10 locations you have used as an origin. Or, click the "**Select New Origin...**" button to the right of the list.
5. Modify the Vessel SOG (Speed Over Ground) to reflect the speed of the vessel. Arrival date and time will be displayed in the Route Summary text field.

Layovers

During a long trip, you can establish a Layover for time spent anchored. Layovers are then calculated into your ETA's. To set a Layover:

1. Click on the **PlanBook** button or **Tools | PlanBook** from the Main Menu. From the Routes Tab, select the Route Detail Tab for a selected Route.
2. Select the leg of the route that will contain the layover.
3. In the **Type** column, click the down arrow and select **Layover**. To change a waypoint back to normal, click the down arrow and select **Normal**.
4. The **Layover Time** field for that leg will change from N/A to 0:00:00. Change the layover time by right-clicking on that field and selecting **Edit Layover Time...** Type in the length of your layover time based on total hours (36:45:00, for example, would be a 36 hour, 45 minute layover) and click **Enter**.

New Route

Along the bottom of the PlanBook is a row of buttons that allow you to perform various functions. The first button is labeled **New Route**, which allows you to manually input Lat/Lon coordinates to create a route.



NOTE: It is easiest to use the Route tool. Use the New Route button only when you have a list of precise Lat/Lon coordinates to input.

To create a new route using the PlanBook:

1. Click on **PlanBook** or select **Tools | PlanBook** from the Main Menu to view the Routes Tab.
2. With the Routes Tab open, click the **New...** button.
3. Input a name for the new route in the dialog box and click **OK** to open the Insert Waypoint window.

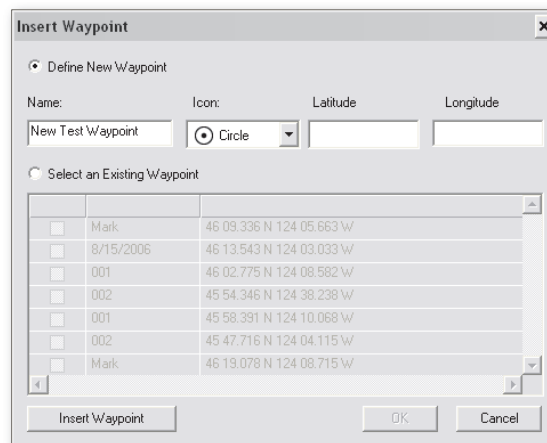


Figure 9.2 - PlanBook - Insert Waypoint Window

4. Input your Lat/Lon coordinates, or, to use an existing waypoint, click the radio button labeled **Select an Existing Waypoint** and select from the list of available waypoints.
5. Once information for the new waypoint has been input, click **Insert Waypoint**. Repeat for each waypoint in your new route.
6. When finished entering all waypoints, click **OK**.

Adding a Waypoint to an Existing Route

Use this feature to add a new waypoint to an existing route. This is useful when adding segments to a route that already exists.

To add a new waypoint to an existing route:

1. Click on **PlanBook** or select **Tools | PlanBook** from the Main Menu to view the Routes Tab.
2. Select the name of the route to edit.

3. From the **Route Detail** Tab, click the waypoint prior to or after the location of the new waypoint.
4. Click **Insert After** or **Insert Before**. The Insert Waypoint Window will be displayed (see **Figure 9.2**).
4. Input the waypoint's Lat/Lon coordinates, or, to use an existing waypoint, click the radio button labeled **Select an Existing Waypoint** and select from the list of available waypoints.
5. Click **Insert Waypoint**. The waypoint will immediately be added to the route. All numbered waypoints listed after the new one will be renumbered according to their new place in the Route List.
6. Click **OK** to close the Insert Waypoint Window.

Editing Waypoints

Most of the time, to edit a waypoint, you can find it on a chart, right-click and edit in the Properties menu. You can also use the PlanBook to edit routes manually. To edit a waypoint:

1. Click on **PlanBook** or select **Tools | PlanBook** from the Main Menu to view the Routes Tab.
2. Select the name of the route to edit.
3. From the **Route Detail for...** Tab, highlight the waypoint to edit.
4. Double-click the waypoint that you wish to change. The Properties window for that Mark will open. For cells that contain data such as Lat/Lon or speed, you may also click on the cell and press **<Enter>** to manually input a new value.
5. When finished, close the Properties dialog box.

Deleting Routes and Waypoints

The easiest way to delete an object is to right-click on the object and select **Delete** from the pop-up menu. You can also delete waypoints or an entire route from the Route Tab of the PlanBook.

To delete a route:

1. Click on **PlanBook** or select **Tools | PlanBook** from the Main Menu to view the Routes Tab.
2. Select the name of the route to delete.
3. With the route highlighted, click on the Delete button.

To delete an individual waypoint:

1. Click on **PlanBook** or select **Tools | PlanBook** from the Main Menu to view the Routes Tab.
2. Select the name of the route to edit.
3. Click on the **Route Detail for...** Tab and highlight the waypoint that you want to delete.
4. At the bottom of the screen, click on the **Delete** button.

Changing the Waypoint Order

This is used to change the relative position of a waypoint in a route. Moving a waypoint in a route can be accomplished in the PlanBook by using the **Move Up** or **Move Down** buttons which are located along the bottom edge of the PlanBook under the **Route Details** Tab.

1. Click on **PlanBook** or select **Tools | PlanBook** from the Main Menu to view the Routes Tab.
2. Select the name of the route to edit.
3. Click on the **Route Detail for...** Tab and highlight the waypoint that you want to move.
4. Click the **Move Up** or **Move Down** button.
5. Repeat as needed for any waypoint that you want to move.

Fuel Consumption

The PlanBook can be used to calculate your projected fuel consumption for any route that you have created in your program. Just enter values for the rate of fuel consumption for your vessel at different speeds and the program will calculate the rest. Information regarding your vessel's fuel consumption rates are available from your boat manufacturer. To set fuel rates for a route:

1. Click on **PlanBook** or **Tools | PlanBook** from the Main Menu.
2. Click the **Set Fuel Rates** button.
3. The **ETA Calculator - Set Fuel Use** dialog box (see **Figure 9.3**) will appear. Click on the **New** button.
4. Another dialog box will appear. Enter as many estimated SOGs and their relative fuel rates for your vessel as you have available and click Add Entry after entering each set of values. When finished, click **OK** which will return you to the **ETA Calculator - Set Fuel Use** dialog box. Click **OK** to return to the PlanBook.
5. From the Route Tab in the PlanBook, select a route that you would like to view the Fuel Usage Rate for and click on the Update button next to

the Route Summary pane. The Route Summary should appear and give you your Estimate Fuel Usage for the route you selected.

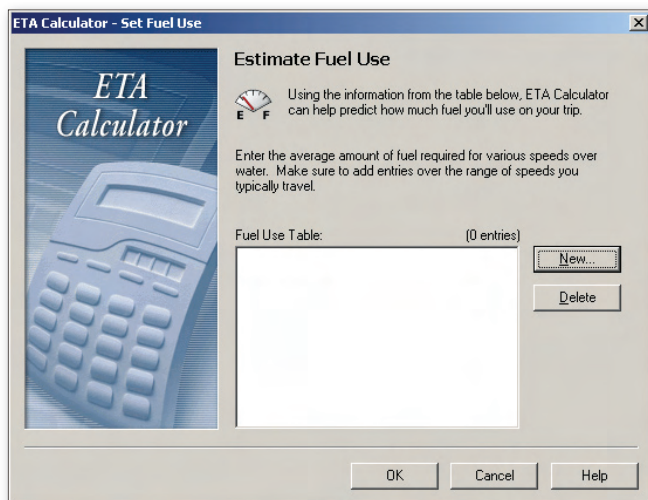


Figure 9.3 - ETA Calculator - Set Fuel Use Dialog Box

The Marks Tab

Using the Marks Tab of the PlanBook (see **Figure 9.4**), you can manage all the marks you have created. The Marks Tab allows you to edit or delete a mark and also calculate its range, bearing and ETA. Marks are listed alphabetically, so it is helpful to use similar names for marks you wish to group (Fishing Spot 1, Fishing Spot 2, etc)..

Editing and Deleting Marks

The easiest way to edit or delete objects is to find them on a chart, right-click and select Properties or Delete from the pop-up menu. However, you can edit and delete marks from within the PlanBook as well.

To edit the properties of a Mark:

1. Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu. Click on the **Marks** Tab.
2. From the list of marks, double-click on the mark to be edited.
3. The Mark properties dialog will appear. Edit the properties and then

close the properties dialog box.

To delete a Mark:

1. Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu. Click on the **Marks** Tab.
2. Click on the mark to be deleted.
3. Click the **Delete** button which is located along the bottom edge of the PlanBook window. The mark is immediately removed from the program.

Calculating Range and Bearing to Marks

You can calculate the range and bearing to any position from the vessel or from a user-specified point using the PlanBook. To calculate range and bearing from a mark to your vessel:

1. Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu. Click on the **Marks** Tab.

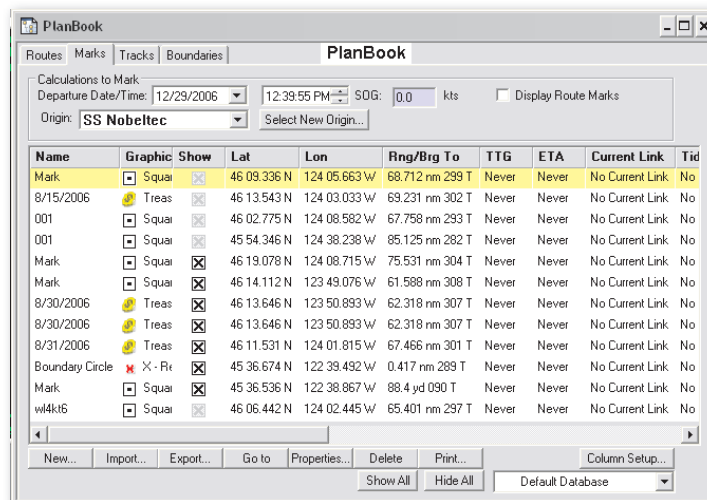


Figure 9.4 - PlanBook - Marks Tab

2. In the drop-down box next to **Origin**, select your vessel. If you have named your vessel in the Boat Properties menu, your vessel's name will appear in the drop-down box. If you have not, the default name of SS Nobeltec will appear.
3. In the column labeled **Rng/Brg To**, you should now see the updated

range and bearing for each mark in the program from the vessel's current position.

To calculate range and bearing from a user specified point to a mark:

1. Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu. Click on the **Marks** Tab.
2. Click on the **Select New Origin** button next to the Origin drop-down box. The Insert Waypoint window appears.
3. Input your Lat/Lon coordinates, or to use an existing waypoint, click the radio button labeled **Select an Existing Waypoint** and select from the list of available waypoints.
4. Once information for the new origin has been input, click **OK**, which will return you to the Marks Tab of the PlanBook. The updated range and bearing information will be displayed in the **Rng/Brg To** column.

Display Route Marks (Waypoints)

The marks that make up a route (waypoints) can be displayed on the Marks Tab of the PlanBook. To have your waypoints listed along with your other marks, place a check-mark in the box next to the option labeled **Display Route Marks**. Once the waypoints are listed with your other marks, they can be edited or deleted just like any mark in the list.

The Tracks Tab

The Tracks Tab of the PlanBook (see **Figure 9.5**) lists all the tracks you have created and allows you to edit each track by name and visibility settings. To edit track properties:

1. Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu. Click on the **Tracks** Tab.
2. Double-click on the track you wish to edit to open the Track properties dialog box.
3. You can edit the name of the track or add a description.
4. Click the small "X" in the upper right corner of the Properties dialog box to close it.

Deleting Tracks

When there are large volumes of tracks and individual track points within each track, your PC may begin to perform noticeably slower than normal. To

avoid this, delete or export your tracks on a regular basis. You may want to backup your tracks prior to deleting them with the Import/Export function.

1. Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu. Click on the **Tracks** Tab.
2. Click on the track that you would like to delete and then click the **Delete Track** button.

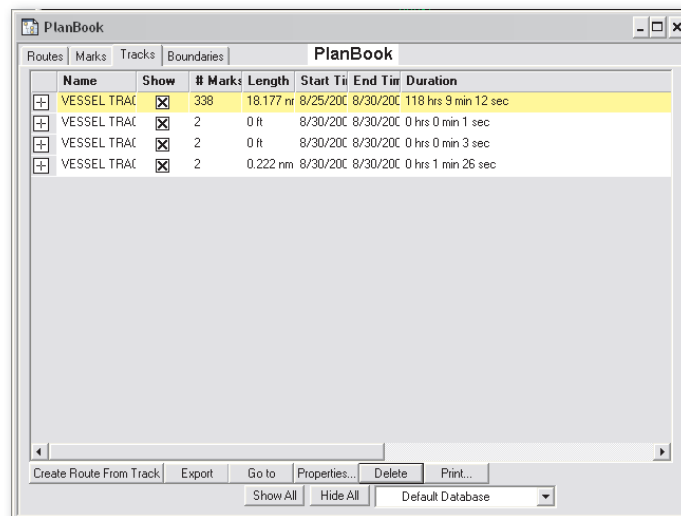


Figure 9.5 - PlanBook - Tracks Tab

Creating a Route from a Track

Nobeltec Navigation Software has the ability to create a route from any track. This is done with the **Create Route from Track** button on the Tracks Tab of the PlanBook. This feature allows you to re-navigate a path you have followed before. To create a route from an existing track:

1. Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu. Click on the **Tracks** Tab.
2. Select the track that you would like to convert into a route.
3. Click the **Create Route from a Track** button.
4. You will now need to enter a value into the **Ignore Track Marks Closer Together Than XX Nautical Miles** box. When you convert a track into a route, each track point could potentially be a waypoint. This setting will

help eliminate an excessive number of waypoints.

- Click **OK**.

The Boundaries Tab

The Boundaries Tab of the PlanBook (Figure 9.6) lists all boundaries you have drawn in your program. Boundaries are listed alphabetically. Using descriptive file names and giving alphabetically similar names to boundaries you wish to group together helps you locate them more easily in the PlanBook. The PlanBook also allows you to edit and delete boundaries.

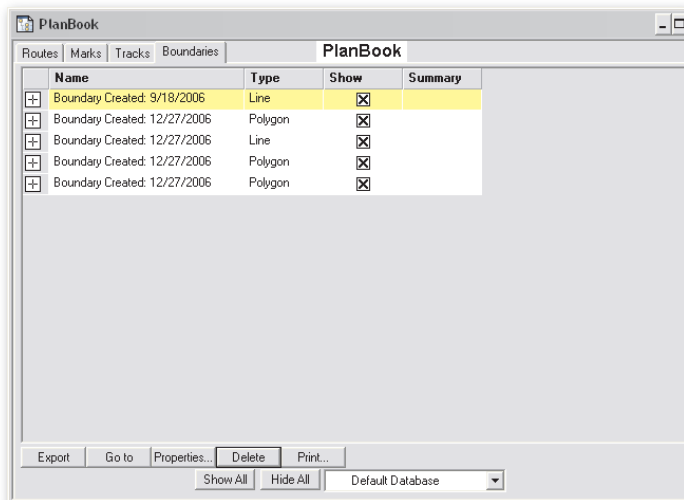


Figure 9.6 - PlanBook - Boundaries Tab

To edit Boundary properties:

- Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu.
- Click on the **Boundaries** Tab.
- From the list, double-click on the boundary that you would like to edit.
- The Boundary properties dialog box will appear. Edit the properties using the available Tabs from within the properties dialog box.
- When finished, click the small "X" in the upper right corner of the properties dialog box to close it.

To delete a boundary:

- Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu. Click on the **Boundaries** Tab.
- Click on the boundary to delete from the list in the PlanBook.
- Click on the **Delete** button. The boundary will immediately be deleted.
- Repeat as necessary for each boundary that you wish to delete.



NOTE: Only the boundary name, summary and visibility can be edited in the PlanBook.

Changing Column Appearance

Each of the Tabs in the PlanBook can be customized to your specifications. Each column under a given Tab contains a column header which lists the columns name. Between each of the column headers is a small vertical line which divides the columns. Place the mouse pointer over any of these lines and watch the pointer change into a vertical line bracketed by two small arrows (see Figure 9.7). When the cursor looks like this \longleftrightarrow , you can drag the column divider to a new position, widening or narrowing the column.

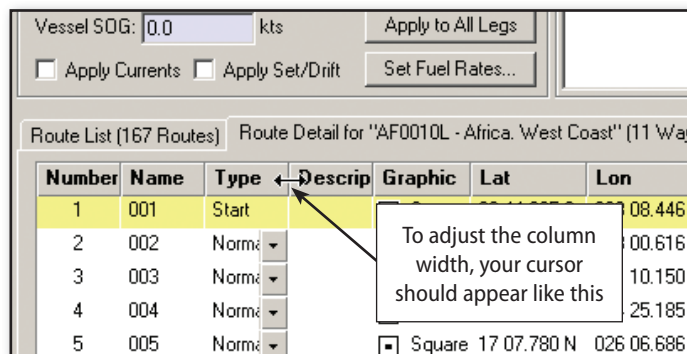


Figure 9.7 - Adjusting the Width of Column Headers

Changing the Route Detail and Marks Tab Visible Columns

Use this feature to change which columns are displayed onscreen in the Route Detail and Marks tabs.

- Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu. From the Routes tab | Route Detail tab, or click on the

Marks tab.

2. Click the **Column Setup** button in the lower right corner of the window. A new dialog box will appear that is divided in two. The list to the left are the columns currently being displayed. The list to the right are columns that are not displayed.
3. Select the column(s) you want to add or remove. Click the ">>" button to remove a column or the "<<" button to add a column.
4. When finished, click **OK**.

Changing Route Detail and Marks Tab Column Order

Use this feature to change in what order columns appear onscreen in the Route Detail and Marks tabs.

1. Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu. From the Routes tab, click on the Route Detail Tab or Marks tab.
2. Click the **Column Setup** button in the lower right corner of the window.
3. From the Column Setup dialog box, select a column name and then click on the **Up** or **Down** button to move it in the list. When the Column Setup dialog box is closed, the column header names will be displayed from left to right in the tab.
4. When finished, click **OK**.

Importing and Exporting Data

You can import and export data from the PlanBook or from the Nobeltec Navigation Software main menu. Both have the same effect and launch the same Import and Export dialog box.

You can export data in two formats: Open Navigation Format (ONF) or Comma Separated Values (CSV). CSV is the best format to use when viewing data in a spreadsheet, ONF is a format that can be easily re-imported into Nobeltec Navigation Software. ONF can be used when saving route history that you intend to use at a later date and stores with a .txt extension.

Importing and Exporting Data Using the PlanBook

To import navigation object data:

1. Click the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu.
2. From any of the four Tabs in the PlanBook, click the **Import** button to

open the Import dialog box. Choose a data type (Routes, Marks, Tracks or Boundaries) to import.

3. **Browse...** to the location of the stored navigation object data file and select the file you wish to import. Data from that file will appear in the navigation window.
4. To import all navigation object data from the selected .txt file, click **Import All**.
 - a. To import specific navigation objects, click the "+" sign to the left of the folder that contains the data you wish to import.
 - b. Click on the individual item to import and then click the **Import** button. *This must be repeated for each item.*
5. Click **OK** to close this window.
6. Data you imported should be immediately available to view in the corresponding PlanBook tabs.

To export navigation object data:

1. Click on the **PlanBook** button on the ToolBar or **Tools | PlanBook** from the Main Menu.
2. From any of the four Tabs in the PlanBook, click **Export** to open the Export dialog box.
3. In the right-hand **Export File As:** drop-down list, choose to export your file as a CSV or ONF file.
4. **Browse...** to the location where you wish to export your data and name the data file. ONF files will be saved with a .txt extension.
5. To export *all* of your data, click on **Add All to Export List**.
 - a. To export *a specific data type*, first highlight the respective folder (Marks, Routes, Tracks, Boundaries or Range/Bearing Lines) for that type. Then click the "+" sign to the left of the folder you highlighted.
 - b. Click on each object you wish to export and click Add to Export List. Files are added to the export file once you click OK.
6. To export all objects within a folder, click on each object type and then click **Add to Export List**.



NOTE: If you click on **Add All to Export List**, all objects in every folder will be exported.

7. Click **OK** when finished. Data you exported is then saved to the .csv or .txt file you specified in Step 4.

10 Printing

Print Wizard

Nobeltec Navigation Software uses a Print Wizard to help you produce several different types of printouts. You can print sections of nautical charts to use as a visual reference or as part of a float plan.

There are several options for printing charts. They are:

- **Single Chart.** This printing option provides you with an options menu (as seen in **Figure 10.1**) before printing. Using the options menu, you can select the layers you would like to have printed with the chart.
- **Small Scale to Large Scale One Chart Per Page.** This prints several chart images that "zoom in" on the center of the chart window.
- **Small Scale to Large Scale Two Charts Per Page.** Same as above except that there are two chart images per page.



NOTE: For both Small Scale to Large Scale options, you may specify a scale range to start with and how many charts above that scale to print.

- **Chart Window.** This prints the area covered inside of the chart window without allowing you to select any options. In other words, whatever features or layers appear on your chart, that is what will be printed.

To print a chart using the Print Wizard:

1. Open the chart that you would like to print.
2. Pan and zoom to the desired location.
3. Click **File | Print** from the Main Menu or the **<Ctrl+P>** Hot Key.
4. In the Print Wizard choose the type of print you would like to make (from the four choices described above), then click **Next**.
5. If you selected any option other than **Chart Window**, you will see the Print Options dialog box as shown in **Figure 10.1**. Select all the options that you would like to appear on your print out and click **Next**.
6. Depending on your PC's system configuration, your printer's dialog box may appear. If it does, select the printer you would like to use and click **OK**.



Figure 10.1 - Print Wizard - Print Options Dialog Box



NOTE: With Raster charts, enabling CrystalView will improve the print quality when not printing in Proof mode.

Printing Tides and Currents Information

Nobeltec Navigation Software can print information about any of the tide or current stations displayed on a chart. When you want to print this information, the printing is actually done through the Tides & Currents program, which is a separate program from Nobeltec Navigation Software.

To print tides or currents data:

1. Activate tide and current overlays by clicking on the **Tide Bar** button or **Current Arrow** button on the ToolBar. You can also turn these on by right-clicking on the chart and selecting **Display Current Arrows** or **Display Tide Bars** from the pop-up menu.
2. Right-click on the tide bar or current arrow for which you would like to print a report.
3. Click the **View in Tides & Currents**. This opens Tides & Currents and displays the tide or current station in a graphical format.

4. From the Tides & Currents program, click **File | Print** or click on the **Print** button for more printing options. To print the window as it appears, click **File | Quick Print** or click on the **Quick Print** button.
5. Using the Tides & Currents print options dialog box (see **Figure 10.2**), select how you would like your tide or current printout to appear.
6. When finished, click the "X" button in the upper most right hand corner to close the Tides & Currents program window.

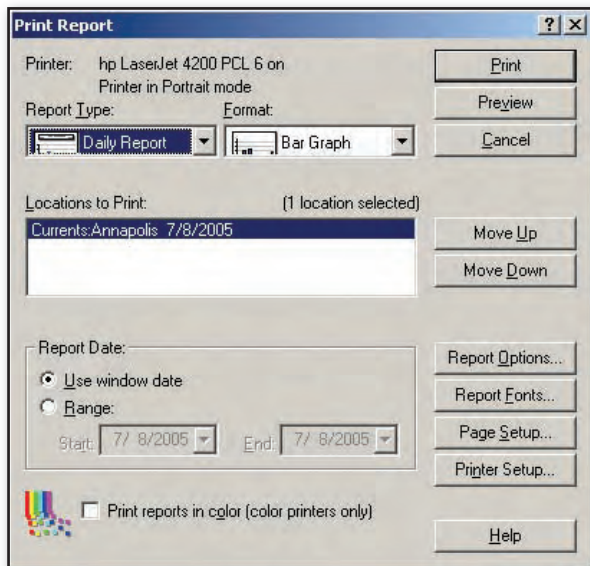


Figure 10.2 - Tides & Currents - Print Options Dialog Box

11 Tides & Currents

Tides & Currents is a stand-alone application that provides tide and current prediction data to Nobeltec Navigation Software using ToolBar buttons or a pop-up menu. Tide and current predictions can be overlaid on top of your navigation system or used independently of VNS and Admiral to create detailed reports and research tide and current information for all the NOAA and CHS primary and secondary stations in the US and Canada.

Displaying Tide Bars



To display tide bars on top of your electronic chart, click Tide Bars on your program ToolBar, the **<Shift+T>** Hot Key or right-click on any chart and select **Tides and Currents | Tides Bars** from the pop-up menu.

If you do not see any tide bar icons, there may not be any tidal stations in the area covered inside your chart window. If this is the case, zoom out until you are able to see the stations displayed in the chart window.

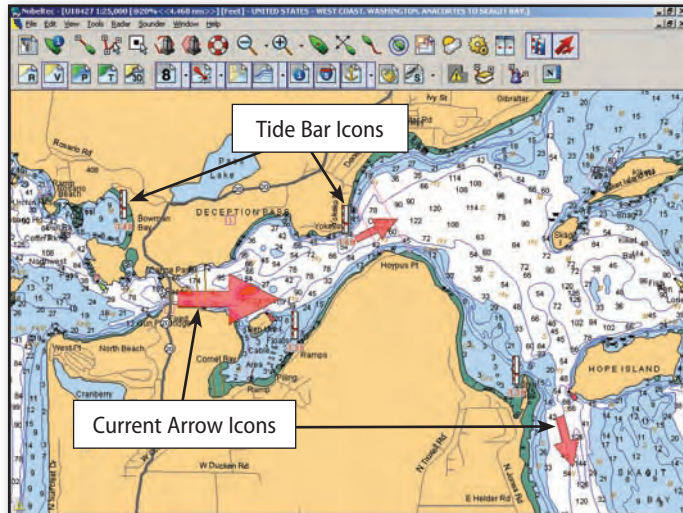


Figure 11.1 - Tide & Current Icons of the Chart

Interpreting Tide Bars

The tide bar icons on the chart display a quick indication of tide height based on the present system time on your PC. The blue section of the bar indicates tide height. The more blue that is visible, the higher the tide height will be. If you have the **Display Screen Tips on Charts** option turned on, you can place the cursor on any station to see the name of the station and its associated value (height). The **Display Screen Tips on Charts** option is on by default when the program is installed, but if you have turned it off, it can be turned on through the **Options** menu under the **Misc.** Tab.



WARNING: Tide & Current stations are shown in the exact location NOAA's data specifies, Lat/Lon coordinates of the stations rounded to the nearest minute. As a result some stations may appear on land.

Displaying Current Arrows



Displaying current arrows functions in the same manner as displaying tide bars. To display current arrows on top of your electronic chart, click on the **Current Arrows** tool on your program ToolBar, the **<Shift+C>** Hot Key or right-click on any chart and select **Tides and Currents | Current Arrows** from the pop-up menu.

After activating the current arrows, you should see current arrow icons (as shown in **Figure 11.1**) on the chart. If you do not, there may be no current stations in the area currently displayed within the chart window. In this instance, zoom out until you are able to see the closest tide and current station(s).

Interpreting Current Arrows

As shown in **Figure 11.1**, current icons appear as a transparent **red arrow**. The arrow points in the direction the current is moving based on the present system time on your PC. In addition, the size of the arrow serves as a visual indication of how strong or weak the current is. A large arrow indicates strong currents, whereas a small arrow indicates a weak or slow current.

The numbers displayed with the current arrow is a current speed. Speed values are displayed as determined by your **Tools | Options | Units** settings.

If you have the **Display Screen Tips on Charts** option turned on, place the cursor on any station to see the name of the station and its associated value (speed and direction). The **Display Screen Tips on Charts** option is on by default when the program is installed.

Adjusting Arrow Size

If you boat in an area where there are a large number of current stations, the current arrows can at times overwhelm that other information on the chart. In this instance, you may want to reduce the overall size of the current arrows. To reduce (or enlarge) the size of the current arrow icons:

1. Click on the **Current Arrow** tool on your ToolBar or right-click on the chart and select **Tides and Currents | Current Arrows** from the pop-up menu.
2. Right-click on any current arrow and select **Adjust Arrow Scale** from the pop-up menu.
3. Use the slider bar to either make the arrows larger or smaller.
4. When finished, click **OK**.



NOTE: This option is only available for current arrows, not tide bars.

Tide and Current Time ToolBar

When you turn on the tide and current overlay function in your software, the icons are displayed based on the system time of your PC. However, if you are planning a trip you might want to know what the tides and currents will be doing in the future. To perform this task, use the Tide and Current Time ToolBar. This ToolBar is not on the program ToolBar by default. To add it:

1. From the Main Menu, click on **Tools | ToolBars**.
2. Place a check-mark next to **Tide and Current Time ToolBar**.
3. Click **OK**.
4. The Tide and Current Time ToolBar will be "floating" on top of your Nobeltec program. You can then drag and drop the Tide and Current Time ToolBar anywhere on your ToolBar to dock it.

Using the Tide and Current Time ToolBar

Now that you have added the Tide and Current Time ToolBar to your program, you can adjust the prediction time to any point up to the year 2100. **Figure 11.2** shows the various functions of the Tide and Current Time ToolBar.

- **Date.** You can change the prediction date by clicking on the small arrow next to the date window.
- **Time.** Use the up or down arrows to change the prediction time.

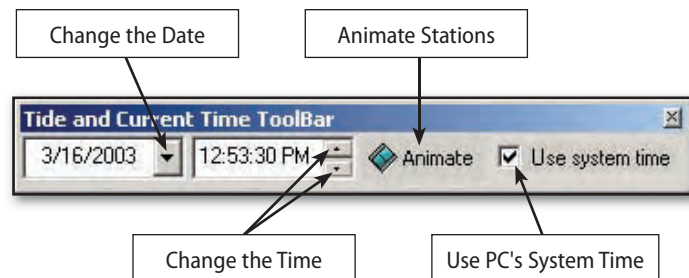


Figure 11.2 - Tide and Current Time ToolBar

- **Animate.** This button animates the tide bars and current arrows over a 24-hour period. Current arrows will get bigger and smaller and change directions as the current moves in and out. In addition, the blue section of the tide bars will also move up and down showing the high and low tides.
- **Use PC's System Time.** Placing a check-mark in the box next to this option sets the tide and current predictions to the time and date that is set on your PC, updating every fifteen (15) minutes.

Displaying Tides and Currents Details

Tides & Currents is a separate program that works in conjunction with Nobeltec Navigation Software. When you activate the tide and current icons, the tide bars and current arrows provide you with a visible representation of what the tides and currents are doing. You can also open up a detailed graph that shows statistical information over a 24-hour period. To open a graph for any tide or current station:

1. Turn on the current arrows by clicking on the **Current Arrow** tool on your ToolBar or right-clicking on the chart and selecting **Tides and Currents | Current Arrows** from the pop-up menu.
2. Right-click on the tide or current station for which you would like to view a graph.
3. From the pop-up menu, select **View In Tides & Currents**.
4. The Tides & Currents program will open (see **Figure 11.3**) and you should see a graph that covers a 24-hour period. The graph will contain several important pieces of information (more details below).

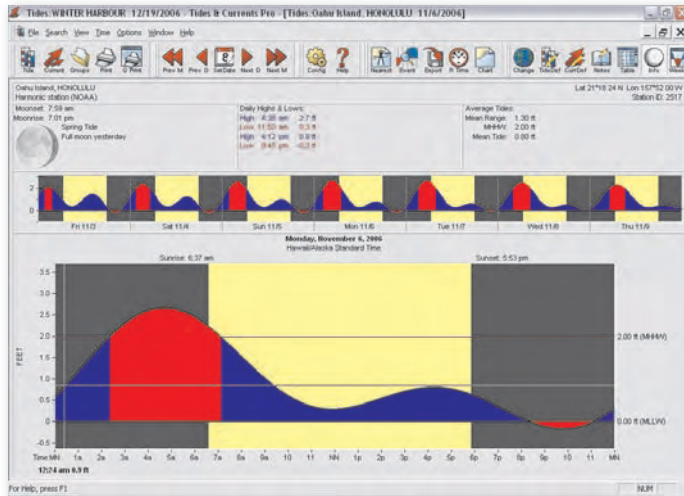


Figure 11.3 - Tides & Currents Graph

The Tides & Currents Graph

The yellow background represents daylight hours (sunrise to sunset). Mean Lower Low Water (MLLW) and Mean Higher High Water (MHHW) or the Max Flood and Ebb values are displayed on the right side of the graph. The crossing lines on the graph show the corresponding time/height for tides or speed/direction for currents combination. You can click anywhere in the graph to see a new time/height. The graph will also show the Moon Phase and Moonset and Moonrise times as well as the daily high and low values.

Weekly View and Daily Table

Two useful optional features on the graph are the Weekly View and the Daily Table. The Weekly View appears on the top of the daily graph and shows an overall picture of what the station looks like for an entire week. The Daily Table appears on the right hand side of the screen and lists the time/height (for tides) and speed/direction (for currents) values in fifteen minute intervals for the station you have selected. These features are not on the graph by default but can be activated by right-clicking anywhere on the graph and selecting them from the pop-up menu. They can be permanently added by using the Tide & Currents Options menu.

Changing the Date

Once the graph is open, you can change the prediction date by clicking on the **PrevMnth**, **PrevDay**, **NextDay** or **NextMnth** buttons on the Toolbar. To set a specific date, click on the **SetDate** button.



NOTE: To return to the current day, click SetDate and then click OK.

The Tides & Currents Toolbar

Tides and Currents has many advanced features that can be accessed through the Toolbar. Those features are explained and briefly described below.

- **Tide.** Allows you to search for and open tide stations in addition to any open windows.
- **Current.** Allows you to search for and open current stations in addition to any open windows.
- **Groups.** Provides the ability to create customized folder(s) of tide or current stations.
- **Print.** Opens the Print Options box with all print options available.
- **Quick Prn.** Prints the current tide or tide station information.
- **Config.** Opens the Tides and Currents Options box, allowing you to customize the program.
- **Help.** Opens the Nobeltec Help file to the Tides and Currents section.
- **Nearest.** Allows you to search for the nearest tide or current stations.
- **Event.** Provides the ability to search for a Tide or Current station based on specific events such as specific heights or speeds, time of slack or changes, amount of swings, etc.
- **Export.** Customize an export of Tide or Current information to a file.
- **Real Time.** Opens a customizable bar that displays real time Tide or Current values for selected stations.
- **Change.** Changes the station being displayed (changes the station displayed in the current window instead of opening a new window).
- **TideDef.** Provides the ability to build custom Tide stations.
- **CurrDef.** Provides the ability to build custom Current stations.

Multiple Windows in Tides and Currents

Multiple tide and current windows can be open at the same time. Stations can be opened in a new window by clicking on the **Tide** or **Current** buttons on the Toolbar and selecting a station.

Tides and Currents on the NavBar

The Tides and Currents as they relate to your vessel or a particular location can be displayed on the NavBar (see **Figure 11.4**). The NavBar is a tool that provides easy access to information such as tide and current predictions.

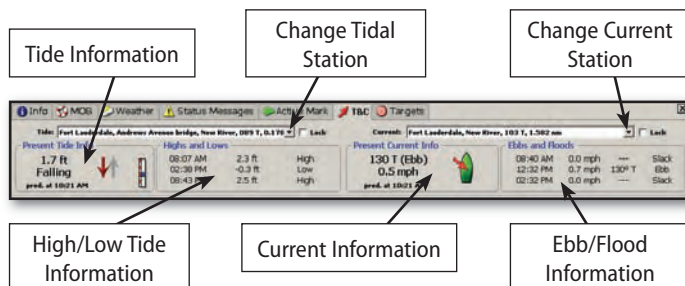


Figure 11.4 - Tides & Currents on the NavBar

ETA Calculator

The ETA Calculator uses tide and current predictions to calculate best departure times, transit times, required speed and fuel consumption. In order for the ETA Calculator to work, tide and current stations must be attached to the various route legs in a created route.

By default, Nobeltec Navigation Software will automatically attach the nearest tide and the nearest current station to each route leg. Because this is done automatically using the nearest stations, there may be other nearby stations that will have a stronger effect on your voyage and on the calculations. In this instance, you may want to manually attach a station to a route leg.

1. Turn on the current arrows and tide bars.
2. Move the cursor over the station that you want to attach to the route leg. Drag and drop the station onto the nearest route leg.
3. A dotted line (see **Figure 11.5**) should appear between the tide or current station and the route leg (red dotted line for currents or blue dotted line for tides).
4. Repeat as necessary for other legs of the route.

Once all tide and current stations have been attached, the ETA Calculator is ready for use.

Calculating Best Departure Time

ETA Calculation uses the tide and current information connected to your route to provide you the best and worst departure times as well as estimated fuel consumption.

To calculate the Best Departure Time:

1. Start the ETA Calculator by right-clicking on any route segment and click **ETA Calculator** from the pop-up menu.
2. Using the ETA Calculator dialog box, select **Best Departure Time** from the three available options and click **Next**.
3. Input your estimated average vessel speed and the earliest and latest dates and times that you would like to depart. Click **Compute**.
4. The ETA Calculator will now compute your best and worst departure times and list them in the ETA Calculator window (see **Figure 11.5**).
5. If you are finished with the ETA Calculator, click **Done**. If you want to perform other calculations, click on the **Back** button.

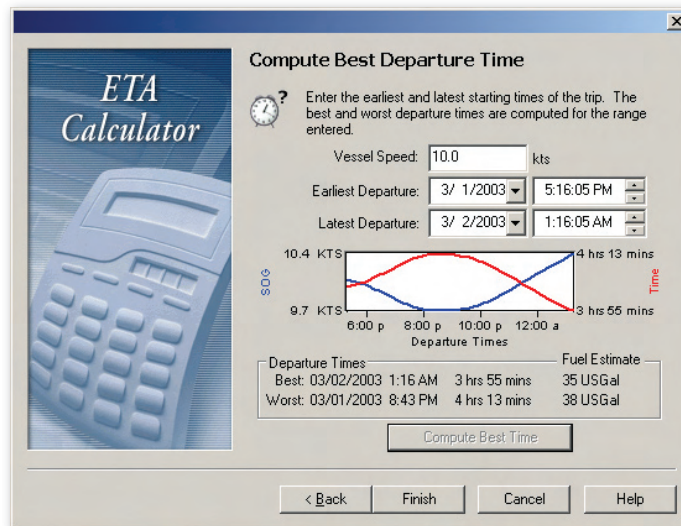


Figure 11.5 - ETA Calculator - Best Departure Time

Calculating Transit Time

This tool calculates EDT when your intent is to arrive at a certain place at a certain time, factoring in obstacles and tides or currents.

To calculate Transit Time:

1. Start the ETA Calculator by right-clicking on any route segment and click **ETA Calculator** from the pop-up menu.
2. Using the ETA Calculator dialog box, select **Transit Time** from the three available options and click **Next**.
3. Input estimated vessel speed for each waypoint.
4. After setting your estimated speed for each point, enter the waypoint number, date and time that you would like to arrive at the waypoint and click **Compute**.
5. The EDT needed to arrive at the waypoint at your given date and time will appear in the ETA Calculator window.

Figure 11.6 - ETA Calculator - Transit Time

Calculating Speed

This option enables you to compute the speed required to arrive at a destination at a given date and time. This computation uses set and drift information to determine any benefit or hindrance from tides or currents.

To calculate Speed:

1. Start the ETA Calculator by right-clicking on any route segment and click **ETA Calculator** from the pop-up menu.
2. Using the ETA Calculator dialog box, select **Transit Time** from the three available options then click **Next**.
3. Input Start and End date and time.
4. Click **Compute**.
5. The ETA Calculator will now compute the speed needed in order to arrive at the end of your route at the specified date and time (see Figure 11.7).

Figure 11.7 - ETA Calculator - Speed

12 3D Navigator

Passport 3D Bathymetric Charts

Passport 3D Bathymetric Charts are high-resolution sea-floor elevation data, spaced at regular intervals and based on a thirty-meter grid. These charts are part of the Passport Deluxe chart packages for North America and Hawaii. Data points contain latitude, longitude and elevation. Nobeltec Navigation Software interprets this data and renders it into a 3D image, combining charts with a 3D view of the ocean floor and land.

ChartGridding

Since Passport 3D Bathymetric charts are only available in North America and Hawaii, you can use the **ChartGridding** feature to create 3D sea floor topographic data from 2D vector charts in areas where those high-resolution sea floor charts are unavailable.

ChartGridding can also be used to supplement existing vector data, even in places where the high-resolution, 3D, sea floor topographic data *is* available.

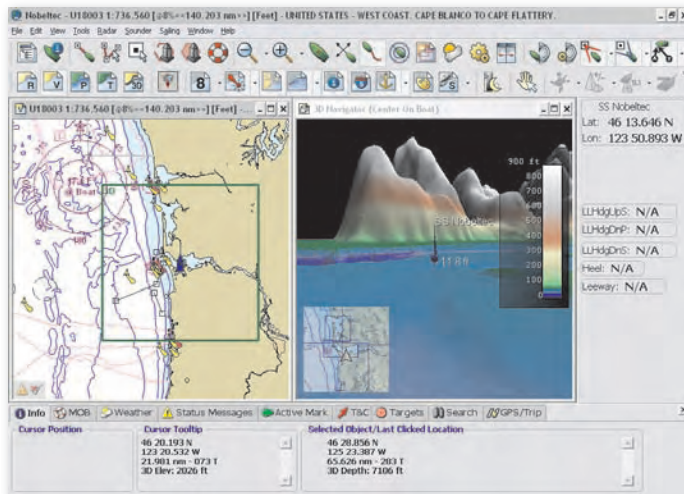


Figure 12.1 - 3D Navigator Window Tiled with Vector

Opening the 3D Navigator Window



The 3D Navigator allows you to view the ocean floor and land in a graphic three-dimensional window. Use this window to gain a new perspective on fishing spots, navigation channels, harbor entrances and other interesting sea floor terrain.

To open the 3D Navigator window:

1. Open Nobeltec Navigation Software.
2. Click on the **Display 3D Charts** button on the ToolBar or click **View | Chart Display Types | Display 3D Charts** from the Main Menu.
3. A 3D Chart window pane will open.

The 3D ToolBar

The 3D ToolBar provides you with easy access to controlling the look of the 3D Navigator window. A brief description of each button can be found below.

Mode



This toggles the 3D view modes.

Terrain Exaggeration



Used to enhance the 3D image by over or under-exaggerating 3D data. Minor changes in elevation become visible in areas that might otherwise appear completely flat (or vice-versa).

Depth Marker



Gives you the option to display the depth marker, keel marker, both or neither. This button toggles you through available selections.

Vessel Exaggeration



Increases or decreases the size of the 3D boat icon. A scale of "1x" means that the boat is represented "to scale" relative to the surrounding area.

Elements of the 3D Navigator Window

3D Locator

The 3D Locator is a green square that appears on your 2D chart windows and it shows the area represented in the 3D window. The gray arrow in the middle of the 3D Locator box shows the direction of the 3D view. Click and drag the 3D locator to change the view in the 3D window. (This automatically changes the 3D window to Explore Mode).

The Status Bar

The Status Bar provides elevation and depth information, the quality of the 3D data (high-res vs. low-res) and amount of exaggeration of the terrain and vessel. Font size of the Status Bar can be changed for easier onscreen viewing.

3D Color Legend

A legend of depth color can be displayed on the 3D window pane. This legend shows the range of color changes as established by the user.

Data Resolution

Refers to the resolution of the installed 3D data. Low resolution planning data has a resolution of 3,280 feet (1 Km) between data points. High resolution data has a resolution of 98 feet (30 m) between data points) and can be obtained by purchasing Passport Deluxe regions (not available in all regions).

Screen Resolution

3D Navigator allows you to zoom in or out just as you would on a 2D chart. When you zoom out, the visible range becomes larger and the 3D grid (Screen Resolution) becomes more coarse. Screen Resolution is displayed in brackets on the Status Bar, represented as a percentage and measurement in feet.

Predicted Depth At Boat

This value indicates the depth beneath the keel at vessels present location. Default value for keel depth is 0 feet. Set keel depth in the **Boat Properties** box on the Stats Tab. Depths reported by the 3D Navigator are estimated and less accurate than a properly tuned depth sounder. With Sounder connected, this value is shown **red** when it is less than the specified Alarm setting.

Track Line

With Tracking on, 3D Navigator will represent the active track line in 3D form.

Predictor Line

Displays where the boat will be at a future time. When the Predictor Line is displayed on the 2D chart, it also appears in the 3D Navigator window.

3D Vessel

The 3D boat icon is a central part of the 3D Navigator window. All of the visible objects and tools in the 3D window are associated with it. You can change the boat style from **Tools | Options | 3D/Bathy**.

Keel Marker

The Keel Marker helps to display the vessel's location on the 3D surface. The vessel icon can change size but the Keel Marker provides a true representation of the bottom of the vessel and a visual cue as to the bottom depth. The top of the Keel Marker is the actual keel depth. The bottom of the marker is the alarm zone area.

Keel Marker settings can be adjusted from **Tools | Options | 3D/Bathy**.

Depth Indicator

A line from the vessel to the ocean floor providing a visual identification for depth. It can be turned on using the Depth Marker button on the 3D ToolBar.

Changing the 3D Landscape (Terrain, Sky and Water)

To change how the 3D chart appears, right-click in the 3D window and select **Appearance | Terrain/Sky/Water**. Use the available settings to change the appearance of the 3D window pane.



TIP: Nobeltec Navigation Software can overlay Passport charts or aerial imagery over terrain in the 3D window, creating a valuable and unique perspective.

Shaded Relief



Shaded relief is a 2 dimensional view of the 3D data. To turn Shaded Relief on and off, click on the Shaded Relief ToolBar button. Clicking on the small down arrow next to the Shaded Relief button presents advanced Shaded Relief options. Using these options, you can select to have Shaded Relief shown on land, water or both. In addition, you can also select to shade the details in color or gray scale.

Using the 3D Window

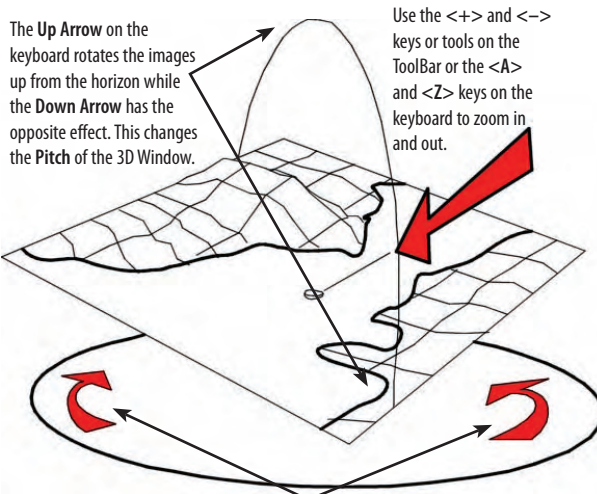
Center On Boat Mode

This default viewing mode keeps the view in the 3D window always centered on your boat. You can change the viewpoint and increase or decrease the zoom level. Select Center on Boat Mode at any time by clicking on the Mode button on the 3D ToolBar.

Zooming and Panning In Center On Boat Mode

Zooming and panning when using Center On Boat Mode is similar to zooming in a normal 2D chart window. You can Zoom In and Out using the buttons on the program ToolBar, the <+> and <-> keys or <A> and <Z> keys on your keyboard. To pan, move the cursor to the edge of the 3D window. When you see a small arrow next to your normal cursor, click and hold down the left mouse button and move the cursor or arrow keys.

Center On Boat Mode keeps the boat at the center of the view. The boat is visible at all times except when obscured by a land feature.



Left and Right Arrows on the keyboard rotate the image around the vertical axis.

Figure 12.2 - 3D Controls in Center on Boat Mode

Explore Mode

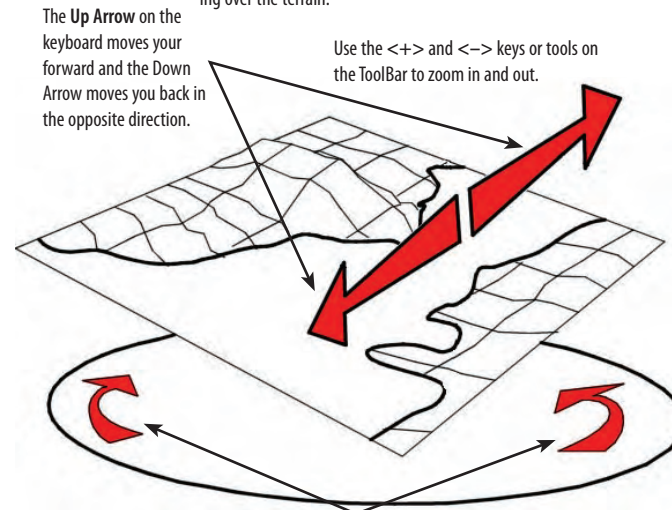
Explore mode allows you to view the entire 3D terrain, regardless of actual position. Select Explore Mode by clicking on the Mode button on the 3D ToolBar or Explore Mode from the right-click menu.

Zooming and Panning In Explore Mode

You can Zoom In and Out using the buttons on the program ToolBar or the <+> and <-> keys. You can adjust the "camera" angle using the <A> and <Z> keys on your keyboard. In Explore Mode, however, you cannot change the pitch (vertical angle) of the 3D window for panning, therefore it is best to set pitch before switching modes.

To set the pitch, use your Up and Down Arrows while in Center On Boat Mode. Once the 3D window is angled to your liking, use the Mode button on the 3D ToolBar to enter Explore Mode. Once you are in Explore Mode, the Right and Left Arrow keys allow you to rotate the 3D chart and the Up and Down Arrow keys move you forward and backward over the terrain.

Explore Mode allows you to move anywhere inside of the 3D window similar to being in an airplane and flying over the terrain.



Left and Right Arrows on the keyboard rotate the image around the vertical axis.

Figure 12.3 - 3D Controls in the Explore Boat Mode



NOTE: You can also use your mouse cursor to move over and pan the chart as well.

BottomLock

When enabled, BottomLock centers the 3D view (Center on Boat or Explore) closer to the ocean floor. When in Explore Mode with BottomLock engaged, your Explore vessel will become a submarine, allowing you to explore the nooks and depths of the ocean in greater detail. Select BottomLock by clicking on the Mode button on the 3D ToolBar or BottomLock from the right-click menu in the 3D window pane.

Adjusting BottomLock Height

Use BottomLock Height option on the right-click menu to set the depth at which to view the ocean floor. *This option is limited by sea-floor depth.*

Favorite Boat/Explore Views

Use this feature to save and retrieve custom 3D view settings. To save a favorite view, right-click on the 3D window and select **Favorite Boat Views** and then click on **Add Current View**. Enter a name so that you can retrieve it at a later time.

Importing Non-Nobeltec Bathymetric Data

You can integrate third-party bathymetric chart data into your Jeppesen Marine charts using the Chart Quilting function (see **Page 16**). Bathymetric chart data can be saved onto your PC and converted into Nobeltec-compatible data for seamless integration with your existing charts.

1. Insert the third-party chart CD into your CD-ROM drive or download third-party chart files into a specific folder on your PC
2. Click **File | Chart Table** and click on the **Install** Tab
3. From the Install Type drop-down menu, select the appropriate data type. Browse to the bathymetric chart file location (CD-ROM drive or download folder). Nobeltec Navigation Software will scan the available data types - if it recognizes the chart format, it will automatically list the charts available
4. Select the individual charts you wish to install or click **Select All**
5. Click **Install** to complete installation. Click **Yes** to overwrite files
6. If you have several chart CDs, repeat steps 1 - 5 for each CD or folder



TIP: You can choose to insert the CD-ROM during each use or to copy the charts to your hard drive for permanent storage. Saving them to your hard drive improves operation speed, but requires more storage memory.

Bathy Recorder

The Nobeltec Bathy Recorder, sold as a Plus Pack to Visual Navigation Suite (VNS) and Nobeltec Admiral, enables you to record sea floor topographic information using your Sounder/Depth Finder device and to incorporate that data into your 3D display.

When you use the Bathy Recorder to customize your sea floor charts, those charts will constantly improve with repeat trips over the same areas, enabling you to have a perfect picture of important sea floor terrain, as well as your favorite fishing and diving spots. The data provided by your Bathy Recorder can be more specifically oriented to your needs than any chart you can purchase. And, with Jeppesen Marine's exclusive, high-quality 3D-rendering, the Nobeltec Bathy Recorder will give you an unparalleled 360° awareness of your environment.

Bathy Recorder can give you specific contour lines that standard 3D charts available don't display, as well as complete control of the contour line display. Create your own custom contours to see the areas of sea-floor topography that are important to you.

See **Chapter 23 - Bathy Recorder** for detailed information about the Bathy Recorder Plus Pack.

13 - Wind and Weather

Nobeltec provides you with a number of options to display wind and weather data directly on top of your charts to aid in navigation decisions.

Wind

Provided that you have a wind sensor attached, you can use available wind data in your calculations. With Sailing Plus Pack, you can also display Wind data overlaid on your charts.

- **Apparent Wind.** This is the way that the wind impacts your ability to navigate, factoring in speed, direction, currents, etc.
- **True/Theoretical Wind.** Actual wind data without accounting for bearing, speed, etc.

Both Apparent Wind and True/Theoretical Wind data can be viewed for Speed (AWS and TWS) and Angle (AWA and TWA). You can also view True/Theoretical Direction (TWD). Adjust AW and TW settings from **Tools | Options | Weather**.

- **Speed (AWS/TWS):** Units as selected from **Tools | Options | Units**.
- **Angle (AWA/TWA):** Wind Angle can be displayed as either 0-180° Port or 0-180° Starboard or as 0-359°. When using the Port or Starboard configuration, data is accompanied by a **Red** arrow for Port and a **Green** arrow for Starboard. (This is the default setting).
- **Direction (TWD):** Wind Direction will display as Magnetic or True, depending on display settings you have established.
- **Velocity Made Good Towards Wind (VMG-WND).** VMG is, essentially, your boat's velocity calculated against the direction of the wind. Using this calculation allows you to account for wind factors in your velocity display, speed and ETA calculations.



WARNING: Wind data provided by Nobeltec Navigation Software is based on bearing and velocity. This data is referred to as "Velocity Made Good" (VMG) data and cannot be thoroughly verified.

Conditions At Cursor

With weather features selected and turned on under the Weather Option section, move your cursor over the chart. The Condition At Cursor box will display the values for the prediction types that you have selected to view.

For XM/WxWorx and GRIB weather, conditions at cursor will display up to four layers of information. Priority is Surface data (temp and pressure), Waves (height, period, direction), Visibility, Tropical and Radar.

Weather

All weather data available through Nobeltec Navigation Software is produced by third parties and compiled using several reliable national and international sources. Weather Provider options are:

- GRIB Weather
- XM/WxWorx Weather Plus Pack *
- SkyMate Weather *
- Nobeltec Weather

* SkyMate and XM/WXWorx Weather both require that you have purchased and installed the appropriate satellite hardware.

When you change Weather Providers, it may take a few minutes before data from the new Weather Provider displays on-screen.



NOTE: Weather data does not display over 3D charts.

To display weather data in Nobeltec Navigation Software:

1. Choose the weather provider you wish to use.
2. Download weather data onto your computer (via Web, satellite radio access, cell phone or email attachment).
3. Configure and display the weather data.



NOTE: SkyMate and XM/WxWorx Weather require you to have the appropriate hardware to view that data. For Admiral users, OCENS WeatherNet ships with your software, ready for easy installation and use. To use the WeatherNet GRIB download service for weather overlay, you must subscribe to the OCENS weather data service.

Once you have selected a Weather Provider and installed any appropriate hardware and software pertinent to that provider, use the **Tools | Options | Weather Tab** to establish settings specific to your selected weather provider.

Tools | Options | Weather

Tools | Options | Weather is where you configure how weather graphics will appear when overlaid on the charts. Before using this tool, you must select a Weather Provider (GRIB, XM/WxWorx, SkyMate or Nobeltec).

The following options are available from the Weather Tab.



WARNING: *Not all of these options are available from all weather providers.*

- **Weather Provider** - With Nobeltec's weather partnerships, you can receive weather updates from Nobeltec, SkyMate, GRIB or XM/WxWorx.



NOTE: When you change Weather Providers, it may take a few minutes before data from the new Weather Provider displays on-screen.

- **Pressure** - Barometric pressure can be displayed as contour lines with labels or as a color gradient. Options are **Filled** or **Line**.
 - **Frequency** - This refers to the number of barometric pressure contours that you want to show. The options are 2 Mb or 4 Mb.
- **Radar Opacity** - Radar weather overlay can be made more or less transparent with this setting. Options are **25%**, **50%**, **75%** or **100%**.
- **Satellite Opacity** - Satellite (cloud cover) overlay can be made more or less transparent with this setting. Options are **25%**, **50%**, **75%** or **100%**.
- **Wind** - Wind can be displayed as arrows or as wind barbs. Wind barbs are meteorologically correct wind symbols. Wind is coming from the cardinal direction of the line toward the tip. The feathers on the end signal the wind speed.
- **Current** - Ocean Currents can be shown as Arrows or Hollow Arrows.
- **Sea Surface Temperature** - Can be shown as Line Contours (transparent contours with temperature labels) or as Filled Contours.
- **Sea State** - Also referred to as wave height, these can be shown as transparent Line Contours or Filled Contours.
- **Swell** - The swell is depicted as Arrows or Hollow Arrows.
- **Storms** - Can show Maximum Information such as the storm name and history and a circle indicating wind strengths or Minimum Information.
- **Apparent Wind Angle (AWA)**. This is the way that the wind is impacting your ability to navigate, factoring in your speed, direction, currents, etc.
- **Theoretical (True) Wind Angle (TWA)**. This is the actual data about wind without accounting for bearing, speed, etc.

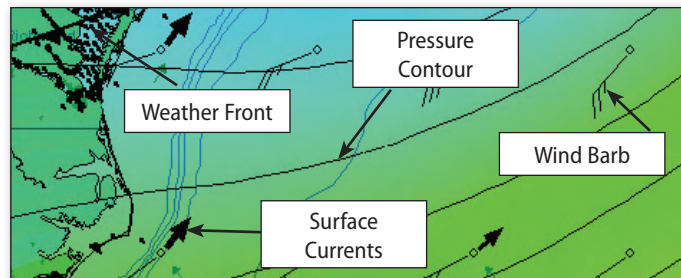


Figure 13.1 - Weather Elements On the Screen (Nobeltec Weather)

Nobeltec and GRIB Weather Options



NOTE: SkyMate options are edited using SkyMate Connect; XM/WxWorx layer options are controlled using the XM/WxWorx Weather Layers window, accessible through the PlanView NavBar.

After selecting GRIB or Nobeltec as your weather provider, you may determine which weather layers you wish to overlay on your charts. Place a check-mark in the Weather Options check boxes on the Navbar | Weather tab to display or remove various weather features. You may display as many features as your weather provider and service level permits. Not all data types are available in all purchased or downloaded files.

Listed below are the types of weather options available to overlay on your chart. If the weather provider or service level that you purchased or downloaded does not include the data types listed below, they cannot be displayed on your chart.

Figure 13.1 shows how these features might appear on your charts.

- **Barometric Pressure.** This check box turns on pressure contours.
- **Wind.** This check box turns on or off the display of wind values.
- **Ocean Currents.** These are jet stream current predictions and should not be confused with the coastal and tidal currents contained in your Tides & Currents software program.
- **Sea State.** Sea State is the roughness or choppiness of the water, typically a function of the wind, tides and other weather inputs.
- **Swell.** This is the rolling movement of the ocean. Swells are generally measured in height and time between peaks.
- **Weather Systems and Fronts.** This check box shows or hides major

weather system fronts as analyzed by meteorologists.

- **Tropical Storm Information.** Track tropical storms around the globe.
- **Sea Surface Temperature.** Course Sea Surface Temperature is shown as color contours so you can actually see the water temperature.
- **Precipitation.** Radar images of coastal precipitation and weather.
- **Wave.** Sea and wave height.

GRIB Weather Data

GRIB weather data is a highly compact format for data transfer. This format allows for a large amount of weather data to be transferred to your computer quickly without slowing system resources.

Getting GRIB Weather Data (VNS and Admiral)

GRIB Weather Data can be downloaded from multiple sources, some at no charge. You will need Internet access or another data access source such as e-mail or cell phone to receive GRIB (*.grb or bz2 format) files.

1. Save the GRIB file to a location on your hard drive.
2. Open the NavBar | Weather tab.
3. Click **Browse** to open a browser window and browse to the location you saved your GRIB (*.grb or bz2) file(s).
4. Click on the GRIB file you wish to display.
5. Click **Open**.
6. Weather data from that file will be immediately available to display on your charts.

Getting OCENS® WeatherNet Data (Admiral)



Nobeltec Admiral ships with OCENS® WeatherNet™ ready for immediate install. OCENS is a provider of highly compressed, optimized, downloadable weather data in GRIB format. Nobeltec partners with OCENS to provide you this high-resolution global weather data displayed directly on top of your Nobeltec Navigation Software charts. To receive GRIB (*.grb or *.bz2 format) files from OCENS, you must set up a subscription service account with them.

1. Follow instructions included in the WeatherNet program to register and subscribe to WeatherNet. Click **Help** from the WeatherNet program for in-depth instructions. At the time of setup, you will need to determine how you wish to receive data (via Internet or e-mail). WeatherNet is a separate program that runs on your desktop and downloads GRIB data

efficiently to your PC.

2. Set GRIB as your provider in NNS using **Tools | Options | Weather**.
3. Open the NavBar | Weather tab.
4. Click on the OCENS link to open WeatherNet.
5. Determine the region and data type you wish to download using WeatherNet.



NOTE: See your WeatherNet Help file for more information about how to use WeatherNet.

5. Click **Download** to download the GRIB file to your hard drive.
6. Open the NavBar | Weather tab.
7. Click **Browse** to open a browser window and browse to the location you stored your WeatherNet GRIB (*.grb) file(s).
8. Click on the GRIB file you wish to display.
9. Click **Open**.
10. Weather data from that file will be immediately available to display on your charts.

GRIB Weather Options

The following are GRIB weather overlay options. If a field is "grayed out", that type of overlay is not available in the file you loaded.

- **Barometric Pressure**
- **Wind**
- **Ocean Currents**
- **Precipitation**
- **Wave**
- **Sea Surface Temperature**

GRIB Weather at Route (*OCENS WeatherNet / Admiral only*)

When GRIB is your selected weather provider, you may right-click on a route and choose **Download GRIB Weather** from the pop-up menu to instantly launch OCENS WeatherNet with the region for download already configured.

XM/WxWorx Weather Data (Plus Pack)

In order to use XM as your weather provider, you must have an XM-compatible satellite receiver connected to your computer and have purchased the XM/WxWorx Plus Pack from Jeppesen Marine.

XM/WXWorx provides a continuous weather feed over the robust XM satellite radio network, enabling customers to download high-resolution, real-time weather data using the XMLink application to overlay that data on top of your Nobeltec Navigation Software and navigation charts.

Getting XM Weather Data

XM weather data can be accessed only if you have connected your XM-compatible satellite receiver and purchased the XM/WxWorx Plus Pack.

1. Open XMLink.
2. Weather files are automatically downloaded and stored. Nobeltec Navigation Software automatically recognizes XM/WxWorx files and will overlay them on your charts as long as Xmlink is running.

XM/WxWorx Weather Layers

Once you have downloaded weather data from XM/WxWorx, you can control what available Weather data is displayed onscreen using the XM Weather Layers interface.

1. Open the NavBar | Weather tab.
2. Click **Layers** to open the XM Weather Layers window.
3. Select the Layers you wish to display on your charts.

XM Weather Layers contain the following:

- **None.** No base layer.
- **Radar.** Radar data from XM is overlaid on the chart. A tooltip will display the dBZ of the echo, if >10 dBZ.
- **Surface.** Shows surface pressure as contour lines and water temperature as a color graph; wind speed as arrows or barbs, depending on Tools | Options | Weather selection.
- **Waves.** Wave period displays as contour lines. The wave height is displayed as a color graph; wave direction as arrows.
- **Visibility.** Displays as contour lines.
- **Fronts.** Icons for high and low pressure centers, with lines for fronts.
- **Satellite.** Satellite view (clouds) are overlaid on the chart.

- **Radar, Fronts.** Combines radar and fronts display.
- **Radar, Satellite.** Combines radar and satellite display.
- **Fronts, Satellite.** Combines fronts and satellite display.
- **Radar, Fronts, Satellite.** Combines radar, fronts and satellite display.

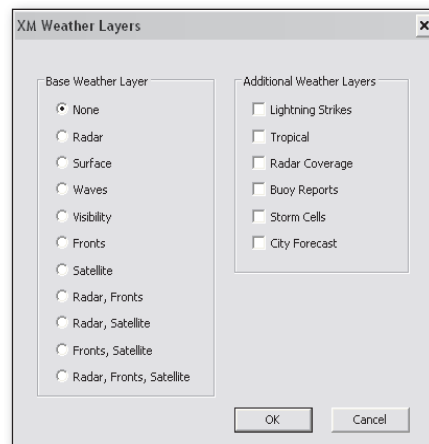


Figure 13.2 - XM Weather Layers

The following additional layers can be combined with any of the previous.

- **Lightning Strikes.** Displays as an icon at the Lat/Lon of the strike.
- **Tropical.** Tropical storms overlaid on the chart.
- **Radar Coverage.** Semi-transparent overlay of available radar coverage from XM.
- **Buoy Reports.** Buoy station icons can be right-clicked to display real-time, location-based information.
- **Storm Cells.** Storm cells are an icon displayed with a forecasted predictor line.
- **City Forecast.** Cities display as a three-letter city abbreviation within a blue oval. Right-click on the oval and select **City Forecast** from the pop-up menu to open the forecast dialog.
- **Marine Zone Forecasts.** When this field is checked, you can right-click within a region and select Marine Zone Forecast from the pop-up menu to open a forecast window. Use the forecast window to choose which region forecast (**None**, **High Seas** or **Coastal**) to display on the chart.

XM/WxWorx Weather Legend

Click the Legend button on the NavBar | Weather tab to open a PDF containing a legend of how XM Weather Layers appear onscreen.

XM Marine Statements and Warnings

Click the Marine Statements and Warnings button on the NavBar | Weather tab to open a text file containing current warnings pertinent to your location.

SkyMate Weather Data

In order to use SkyMate features, you must own SkyMate satellite hardware and have selected **SkyMate Support** during your initial Nobeltec Navigation Software installation. Learn more about SkyMate connectivity solutions at www.skymate.com.

SkyMate features allow you to navigate your boat while remaining connected to email, weather and many other off-shore satellite connectivity benefits.

Select SkyMate During Installation

Once SkyMate is installed, you still have the choice to switch to other weather providers available. Select which weather provider to use from the **Tools | Options | Weather Tab**. When SkyMate Weather is selected, the Weather menu bar will display SkyMate information.

Refer to the SkyMate hardware installation documentation for connecting the SkyMate communicator to your PC and for using SkyMate weather options inside of the Nobeltec Connect window.

Getting SkyMate Weather Data

1. Open the NavBar | Weather tab.
2. Click [SkyMate Connect](#) to open a SkyMate Connect window.
3. Follow the on-screen instructions to download SkyMate Weather or use other features provided by SkyMate.

Nobeltec Weather Data

Provided as a daily, up-to-the-minute download, packaged in different levels: **Bronze** (no-cost option), **Silver** and **Gold** levels, which are both sold separately by Jeppesen Marine. The differences for each level can be seen in **Table 13.1**.

Weather Overlay	Bronze	Silver	Gold
Surface Pressure	3 Day forecast	5 Day forecast	10 Day forecast
Wind	3 Day forecast	5 Day forecast	10 Day forecast
Ocean Currents	3 Day forecast	5 Day forecast	10 Day forecast
High/Low Movement and Speed	1 Day	3 Day forecast	3 Day forecast
Sea State		5 Day forecast	10 Day forecast
Swell Condition		5 Day forecast	5 Day forecast
Weather System Fronts		1 Day	3 Day forecast
Latest Tropical Information		3 Day forecast	3 Day forecast
Sea Surface Temperature		1 Day	1 Day
Ice Information (Bulletins)			Yes

Table 13.1- Weather Service Level Options

Getting Nobeltec Weather Data

Nobeltec Weather Data can be accessed only if your PC has Internet or email access. You can download weather data from the Nobeltec website or receive it in an email. Nobeltec weather data files are compact, typically no larger than 70 Kb.

1. If you intend to use Silver or Gold level weather service, purchase that service from Jeppesen Marine.
2. Select Nobeltec as your weather provider from **Tools | Options | Weather**.
3. Click the **Weather** button on the ToolBar or Weather on the NavBar to open the Weather Tab.
4. Select the Weather Region to display (if downloaded) or click **Daily Download** to get new Nobeltec weather data.
5. Place a check mark next to the Weather Overlay layers that you would like to display on the Chart window pane.
6. Move the cursor on the chart to see conditions at the cursor position.

Step 1. Obtain Weather Data

There are two ways to obtain a weather file from Nobeltec. Each method requires a connection to the Internet and/or email server.

Method 1 - Download From Inside the Nobeltec Program

1. Click on the Weather Tab of the **NavBar**.
2. Click **Daily Download**.
3. Use the drop-down menu to select the region for which you would like to view weather predictions.
4. Use the radio buttons to choose the service level that best fits your needs. Click **Next**.
5. Review the service level and region that you are about to download. Click **Next** to continue.
6. If you are purchasing a one-time subscription, input your payment information and click **Next**. Nobeltec will verify your information, Internet connection and download and install your new weather file.
7. Click **Done** once the file has been successfully installed.

Method 2 - Use the Nobeltec Store

Use the Nobeltec Website to purchase Silver and Gold WeatherMail files daily or place an order for a WeatherMail subscription. WeatherMail is a daily email subscription that can be paid for monthly. Your daily email contains a weather file attachment (< 70 Kb) that you download to your PC.

To purchase a WeatherMail subscription using the Nobeltec Store:

1. Visit the Nobeltec website (www.nobeltec.com/store).
2. Input your 20-digit NNS Serial Number in the space provided.
3. Click **Enter**.
4. Click **Weather** from the left-hand menu.
5. To download the free Bronze data, click **Daily Downloads**. To order an monthly subscription, click **Subscription Service**.
6. Follow the onscreen instructions. Once you complete your purchase, an email containing a WeatherMail file will be sent to your email address.
7. Save the attachment to your PC.
8. Locate and double click on the attachment icon to open the weather file. Once the file has installed, the weather data will be ready for use.

Step 2. View Weather Data

To view weather predictions on top of your navigation system:

1. Open any chart located inside of the weather region you purchased. Weather overlay is most useful when viewed zoomed out to look at large geographic areas. When zoomed in you can get an incorrect perception of the overall weather system.
2. Click on the Weather tab of the **NavBar**.
3. From the Weather Region section of the Weather Tab, select the region of weather to display on top of your charts.

Nobeltec Weather Region

Once you have downloaded weather data, select the weather region you are using. If multiple regions are installed, use the drop-down menu to toggle between them.

Nobeltec Weather Date

Use the **Back**, **Today** and **Next** buttons under the Weather Date section of the Weather Tab. The extent of how far you can view future or past files depends on the number of days available at your service level.

Nobeltec Weather Options

The following are Nobeltec weather overlay options. If an option field is "grayed out", that type of overlay is not available in the file you loaded.

- **Barometric Pressure**
- **Wind**
- **Ocean Currents**
- **Sea State**
- **Swell**
- **Weather Systems and Fronts.**
- **Tropical Storm Information.**
- **Sea Surface Temperature**

Nobeltec Base and Valid Times

Nobeltec weather data is produced by a third party, who gathers worldwide weather data observations from a variety of sources and combines them into a single weather prediction source.

Various types of data are shown using traditional weather symbols. The display types can be changed through **Tools | Options | Weather**

Weather ToolBar Button

Key values are shown as text

Weather region and subscription level shown here

Click here to download the weather from the Nobeltec Website

Valid Date: This is the date to which the weather forecast applies

Use these controls to change the date and time of the displayed weather

The overlays available for each subscription level are shown here. Click to display each desired overlay

Value at cursor for selected layers are shown here

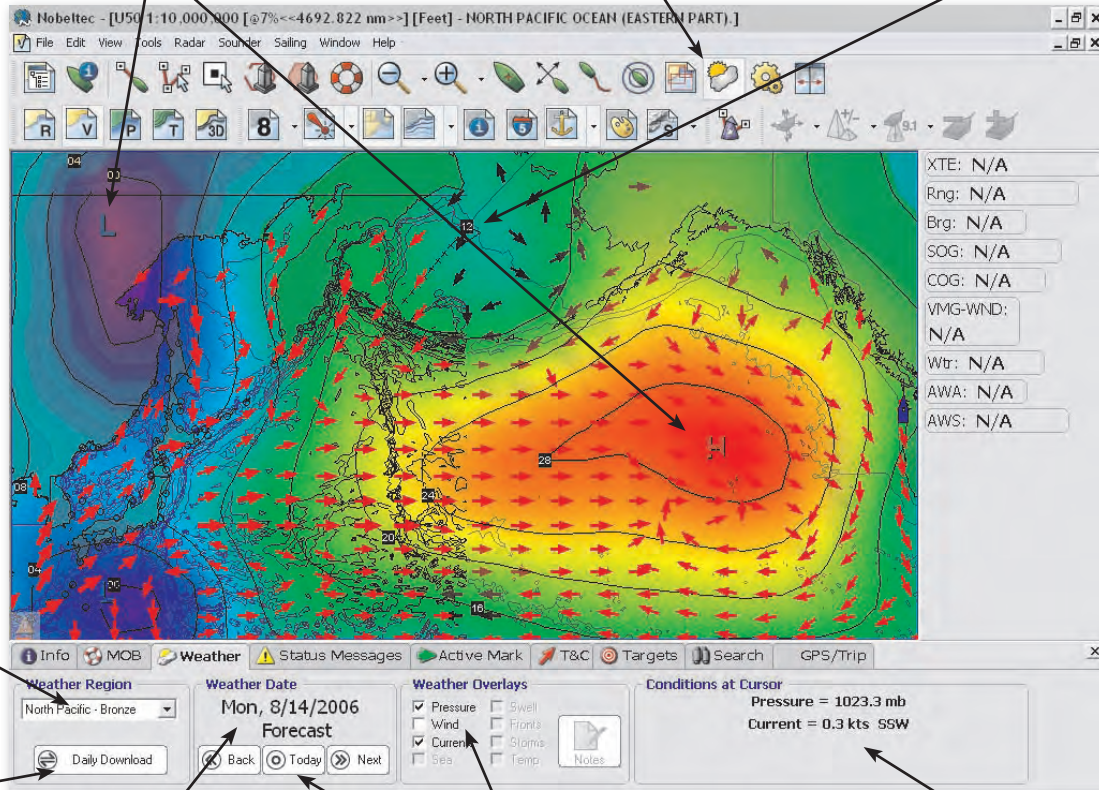


Figure 13.3 - Additional Weather Tools - Nobeltec Weather Provider

Due to the time it takes to gather the data each day, the completed weather model is delivered to the Jeppesen Marine servers at about 18:00 GMT (which is the Base Time) each day. After Jeppesen Marine receives the data, an automatic prompt sends this data to subscribers. To determine the time range that the weather predictions are valid for, you will need to determine the Valid Time. To calculate the Valid Time for your Lat/Lon position:

1. Determine the number of hours you are from GMT.
2. Using the Base Time of 18:00 hours, add or subtract the local difference to get the Valid Time.

For example, the west coast of the United States is -08:00 hours from GMT. Using the steps listed above you would use the Base Time of 18:00 hours and subtract 8:00 hours (local difference). This would provide you with the Valid Time which would be 10:00. This means that the weather file you have received is valid from 10:00 until 9:59 the next day.



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14 Autopilot

Interfacing autopilot with Nobeltec Navigation Software provides you with a number of time-saving and ease-of-use benefits, including easier route planning and more precise options and adjustments.

Autopilot Connections

Wiring

Figure 14.1 shows a typical wiring diagram for a connection between your software, GPS and autopilot. To determine which wires are used for Transmit, Receive and Ground, please refer to your GPS and Autopilot User's Guides. For more information on wiring , please refer to **Chapter 3 - GPS Setup**.

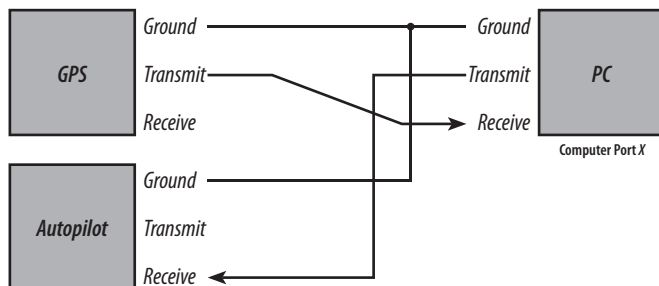


Figure 14.1 - GPS Connection with Autopilot

Settings

Each autopilot requires that certain, specific information be provided by the Nobeltec Navigation Software. Most autopilots follow the same basic principles of heading and cross track error. Autopilot tries to maintain a heading to a mark while maintaining a minimum Cross Track Error.

Nobeltec Navigation Software contains a number of specific settings that have been created because not all autopilots work the same way. Consult your autopilot manual to verify what information the device needs.

To configure Visual Navigation Suite or Admiral to work with your autopilot:

1. Click **Tools | Options | Ports: Configure**. Place a check-mark in the box next to the COM Port for your autopilot.

2. Click the **Configure Autopilot** button. This will display the Configure Autopilot Settings shown in **Figure 14.2**.

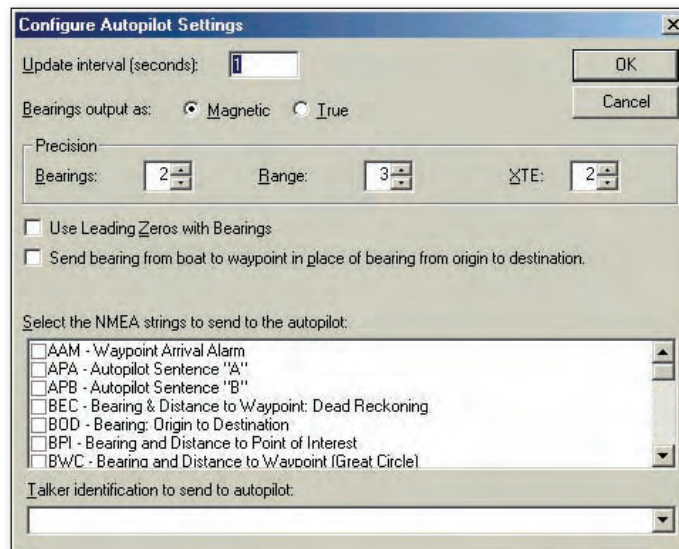


Figure 14.2 - Configure Autopilot Settings Dialog Box

3. In the **Update Interval** field, specify how often control data should be sent to the autopilot.
4. Choose **Magnetic** or **True** for the bearings output and all other fields required for your autopilot (see your autopilot manual).
5. Set the precision for the **Bearing**, **Range** and **XTE**.
6. **NOTE:** Most autopilots use APB, BWC, VTG, WPL and XTE (see Page 12).
7. Below the option labeled **Talker Identification to Send to Autopilot**, select how you want your program to identify itself to your autopilot.
8. Click **OK** to save the settings.
9. Test your autopilot and change the settings as needed. Once setup is complete, document the settings for future reference.

Definitions Of Autopilot Setting Options

- **Update Interval.** The default setting is one second. Few autopilots require more than a one second interval.

- **Bearing Output.** The default value is Magnetic.
- **Precision.** A precision level of 1 means xx.x, a precision level of 2 means xx.xx, etc. NMEA protocol does specify precision.
- **Leading Zeros.** This feature adds a zero to the front of heading.
- **Sentence Selection.** It is important to minimize selected options. The COM port can handle around 600 characters per second and can easily be overrun with too much data.
- **Talker ID.** Some older autopilots do not recognize the EC setting specified by NMEA 0183. In this case, you will need to select an identification acceptable to your autopilot.
- **Send Bearing From Boat to Waypoint in Place of Origin to Destination.** Verify in your autopilot manual.



WARNING: This option should only be used with autopilots that do not correctly compute XTE and must always be pointed directly towards the waypoint.

Using the Autopilot On the Water

To test your autopilot before using it on a trip, find a safe place that is not in use and is approximately one square mile in size.

How to Use the Autopilot - Active Mark

1. Create a Mark on the chart.
2. Right-click on the Mark and select **Activate**. Nobeltec will set the origin to current location, the cross track error to zero and steer to the mark.
3. When you arrive at the waypoint, it will be deactivated.

How to Use the Autopilot - Active Route

1. Create a route in your test area.
2. Right-click on any route leg and select **Activate**. This will automatically activate the route and first waypoint in the route.
3. After activating the route, Nobeltec will direct the vessel along the route line. When the vessel reaches the first active waypoint, it will steer the vessel to the next waypoint and so on, until you reach the end of the route.

Arrival Circle and Crossing the Perpendicular

Waypoint arrival is an important feature when using your software with an autopilot. Nobeltec uses two items to determine if you have reached a waypoint: Arrival Circle and Crossing the Perpendicular.

Nobeltec can switch from one waypoint to the next without a prompt or you can acknowledge an on-screen prompt for waypoint changes.

This feature can be set using the Misc. Tab of the **Tools | Options** menu, **Automatically Activate Next WP Upon WP Arrival**.

Setting Arrival Distance for Existing Marks

To set the Waypoint Arrival Distance for existing marks and waypoints:

1. Right-click on a Mark or Waypoint and select **Properties**.
2. From the Properties dialog box, click on the **Range Circle** Tab.
3. At the bottom of the Range Circle Tab, you will see a box labeled **Arrival Circle**. You may change the default value (0.5 NM) by typing or using the up or down arrow keys.
4. Close the Properties dialog box.

Changing the Default Arrival Distance

To change the default Arrival Distance value for any new marks or waypoints that you create:

1. Select **Tools | Options** from the Main Menu or click the **Options** button on your ToolBar. Then select the **Misc.** Tab.
2. Click on **Set Default Waypoint Arrival Distance**. A small dialog box will open, allowing you to set a new Arrival Distance value.
3. Input a value, then click **OK**.
4. Click **OK** on the **Options** dialog box when you are finished.

15 Upload/Download

Special Notice Regarding Data Backup

Nobeltec makes a copy of your daily, user-created data. It saves the last five copies (1-5, 5 is always the oldest file) and stores them in the Backup directory which is, by default: **C:\Program Files\Nobeltec\Software Name\Database\Backup\1.txt**. If you accidentally delete data that was created in a previous Nobeltec session, you can reload it from one of these backup files.

* Admiral or Visual Navigation Suite

How to Restore an Archived Backup



NOTE: You cannot retrieve data older than 5 sessions without expert help.

1. Launch Nobeltec Navigation Software.
2. Click on File | Navigation Objects | Import from Text File.
3. Click Browse and browse to **C:\Program Files\Nobeltec\Software Name\Database\Backup**.
4. Select 1.txt (the most recent file) and click Open.
5. Verify the data by clicking the "+" next to any category and viewing the list of navigation objects.
6. If the data is correct, it can now be imported.

Upload/Download Basic Terms

- **Upload.** This is the term that refers to sending information to the GPS from Nobeltec Navigation Software. Most GPS units support the transfer of routes, waypoints (or marks) and tracks.
- **Download.** This is the term that refers to receiving route, waypoint (or mark) and track information from the GPS. This should not be confused with the transfer of data such as Lat/Lon position or speed.
- **GPS Transfer Wizard.** This refers to the tool used to upload and download information between your GPS and the Nobeltec Navigation Software. Each GPS uses its own protocol for sending this information. Nobeltec supports most popular GPS units.



NOTE: During Upload/Download, you must turn off the GPS for realtime navigation. Only one software application can access a COM port at a time.

Wiring Your GPS For Upload/Download

If you have not yet connected your GPS to your PC, please refer to **Chapter 3 - GPS Setup** before continuing any further in this chapter. In addition, make sure that all three NMEA wires coming out of your GPS are connected to the three NMEA wires on the Nobeltec serial data cable.

Proprietary Protocols

Some GPS units require you to use their proprietary protocol to upload and download data. If you see a "time-out" error when trying to connect to your GPS unit in the upload/download function, you will most likely need to change the input/output (I/O) settings on your GPS before the unit will upload or download information. Refer to your GPS manual for instructions on changing the protocol and for the settings your GPS unit will require. Don't forget to return the settings to their prior setting(s) when you return to the normal navigation mode.

Uploading to a GPS

1. Select **File | Upload/Download to GPS** to open the GPS Transfer Wizard.
2. Click **Change** to open a list of GPS brand and model names. Select the brand/model that is connected to your computer. (Necessary the first time you use the GPS Transfer Wizard or if you have multiple GPS units attached to the PC). Click **Next**.
3. Review connection information. Most units connect at 4800 baud. Check that the correct COM port is selected. Click **Next**.
4. Choose one of the two function options that start with the word "**Send**" because you are sending information to the GPS. After making your selection, click **Next**.
5. Choose the object(s) that you want to send to the GPS. To send multiple objects, hold down the **<Ctrl>** key while you click the selected objects. To select all objects, click the first object, hold down the **<Shift>** key while scrolling down, then click on the last object in the list. All objects should now be highlighted. When you have finished selecting objects to transfer, click **Next**.
6. You may need to modify names of items sent to the GPS. Most GPS units can only handle a limited amount of text. Click on the Advanced button to change the names, then click **Next**.

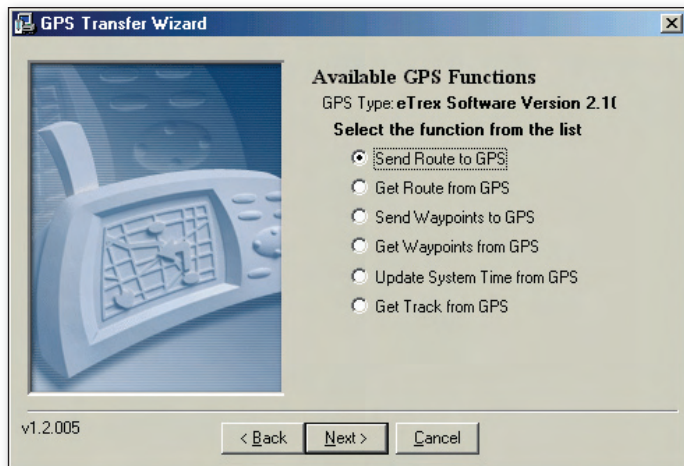


Figure 15.1 - GPS Transfer Wizard - Function Selection Screen

7. The GPS Transfer Wizard will now begin sending your data to the GPS. You should see the progress bar and a summary of the data that is being sent. When completed, click Next to finish.

Downloading from a GPS

This is one way to back up information contained in the GPS unit.

To download information from your GPS to the Nobeltec program:

1. Select **File | Upload/Download to GPS** to open the GPS Transfer Wizard.
2. Click **Change** to open a list of GPS brand and model names. Select the brand/model that is connected to your computer. (Necessary the first time you use the GPS Transfer Wizard or if you have multiple GPS units attached to the PC). Click **Next**.
3. Review connection information. Most units connect at 4800 baud. Check that the correct COM port is selected. Click **Next**.
4. Choose one of the two function options that start with the word "Get" because you are getting information from the GPS. After making your selection, click Next.
5. Follow the onscreen instructions to download specific objects or click **Next** to download all objects and continue.
6. Depending on what you selected to download, the next screen options

vary. Follow the onscreen instructions and click **Next**.

7. The GPS Transfer Wizard will now begin downloading data from the GPS. You should see the progress bar and a summary of the data that is being received. When all data has been transferred, click Next.
8. Close the GPS Transfer Wizard and open the PlanBook by clicking on the **PlanBook** tool on the ToolBar. The objects you selected to download should appear in the PlanBook.

Setting the Computer Clock

GPS requires a very accurate clock in order to work properly. Each GPS satellite contains its own atomic clock.

To set the computer clock using the GPS Transfer Wizard:

1. On the Main Menu, select **File | Upload/Download to GPS**. This will open the GPS Transfer Wizard.
2. Click **Change** to open a list of GPS brand and model names. Select the brand/model that is connected to your computer. (Necessary the first time you use the GPS Transfer Wizard or if you have multiple GPS units attached to the PC). Click **Next**.
3. Review connection information. Most units connect at 4800 baud. Check that the correct COM port is selected. Click **Next**.
4. Select **Update System Time from GPS** and click **Next**.
5. Using the drop-down menu, select the amount of time that your time zone is ahead or behind UTC (GMT).
6. Click **Finish**.

16 Customizing Nobeltec

Nobeltec Navigation Software's ToolBars and Console can be completely configured to your own preferences. If there are Tools that you don't use or that prohibit your ability to see more of the chart, you can turn them off.

The Difference Between a Tool and a ToolBar

- **Tool:** a single button located on the Nobeltec screen.
- **ToolBar:** a group of tools that have similar focus. For example, all of the buttons that operate Passport Charts are located on one ToolBar called the Passport Options ToolBar.

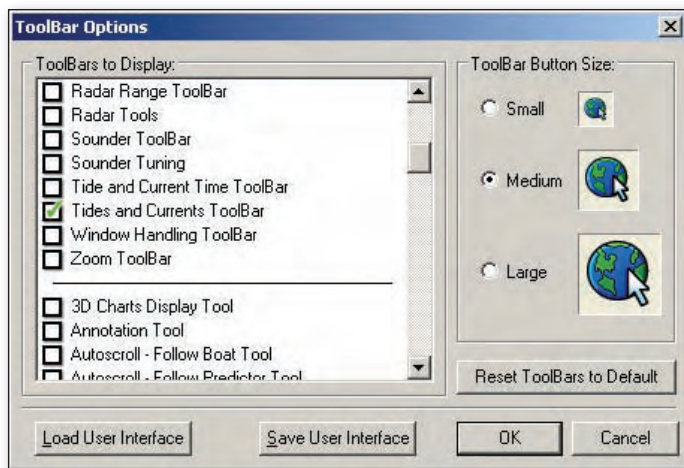


Figure 16.1 - ToolBar Options Menu

Customizing the ToolBar

When you start your Nobeltec program for the first time, several default ToolBars are displayed. If your computer has a smaller screen, you may want to hide some of these or convert them into floating ToolBars to provide a wider area for the chart to be displayed.

To show or hide ToolBars (or individual Tools):

1. Select **Tools | ToolBars** from the Main Menu to open the **ToolBar Options** menu.

2. Place a check-mark next to the name of the Tool or ToolBar that you want to display. Remove the check-mark to turn the Tool or ToolBar off. The list is alphabetical. The top 1/4 of the list contains ToolBars; the bottom 3/4 of the list are individual Tools. The two types are divided by a horizontal black line (see **Figure 16.1**).
3. Click **OK** to complete your changes.

Changing ToolBar Button Size

1. Select **Tools | ToolBars** from the Main Menu to open the **ToolBar Options** menu.
2. On the right-hand side of the ToolBar Options menu, you will see a section labeled **ToolBar Button Size** (as shown in **Figure 16.1**) and three radio buttons with options for **Small**, **Medium** and **Large**. Click the radio button that corresponds to the size you want to use - default setting is Medium.
3. Click **OK**. All the Tools and ToolBars that are currently docked or floating above your charts will switch to the new size. Because of the change in size, you may want to click and drag some of your tools to tighten up the spacing of the Tools and ToolBars.

Moving Tools and ToolBars

ToolBars can be placed or docked on any of the four sides of the program window. They can be dragged into a floating position over the main window.

To move your Tools and ToolBars to a new position or to make them float over the main program window:

1. Move the cursor to any area of the ToolBar that is not a button.
2. Click and hold down the left mouse button.
3. Drag and drop the ToolBar to the desired position. The ToolBar changes to a vertical orientation when you dock it on either side of the window. If you drop the ToolBar on the chart window, it becomes a floating ToolBar.
4. Move all Tools and ToolBars as needed. Click on the **Reset ToolBars to Default** in the ToolBar Options Menu to start over.

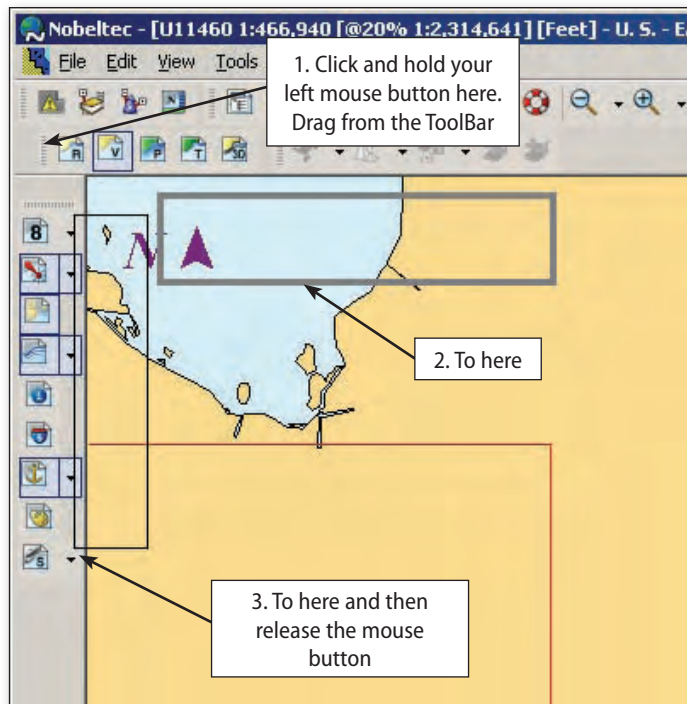


Figure 16.2 - Moving ToolBars

ToolBar Buttons

In addition to allowing you to select ToolBars, you can select the individual Tools to display on the ToolBar. The steps for displaying individual Tools on the Console are the same as for displaying the ToolBar. Listed below are the available tools and a brief description of their functionality.



3D Charts Display Tool. Automatically tiles your chart window vertically and opens a 3D window next to your normal 2D chart.



3D Depth Indicator Tool. Gives you the option to display the depth marker, keel marker, both or neither. This button toggles you through available selections.



Annotation Tool. Create Annotation marks on your charts.



Autoscroll - Follow Boat Tool. When a GPS is connected and the vessel icon is moving in the chart window, this feature automatically scrolls the chart while keeping the vessel icon in the center of the screen.



Autoscroll - Follow Predictor Tool. While underway with a GPS connected, this feature automatically scrolls the chart while keeping the vessels Predictor Line in the center of the screen. (Predictor Line must be turned on in the Boat Properties menu).



Autoscroll - Look Ahead Tool. When a GPS is connected and the vessel icon is moving in the chart window, this feature automatically scrolls the chart while keeping the vessel icon at the lowermost point of the screen.



Autoscroll - None Tool. Disables any active Autoscroll mode.



Boat Properties Tool. Opens the Boat Properties dialog.



Cascade Windows Tool. Cascades the open chart windows.



Center On Boat Tool. Centers the chart view on the boat position.



Change 3D Exaggeration Tool. Used to enhance the 3D image by over or under-exaggerating 3D data. Minor changes in elevation become visible in areas that might otherwise appear completely flat (or vice-versa).



Change 3D Mode Tool. Enables you to toggle between Center on Boat Mode and Explorer Mode while using the 3D Navigator.



Chart Color Scheme Tool. This tool produces a dialogue where you can change the chart colors.



Chart Down Tool. This button allows you to quickly select and open a larger scale (more detailed) chart at the vessels current Lat/Lon position. In Quilting mode, this button does not function.



Chart Outlines Tool. This button controls whether or not chart outlines are displayed on the chart. This feature is enabled by default.



Chart Table Tool. Opens the Chart Table dialog. The Chart Table dialog is used to open, install and uninstall charts, locate charts and geographic reference points.



Chart Up Tool. This button allows you to quickly select and open a smaller scale (less detailed) chart at the vessels current Lat/Lon position. In Quilting mode, this button does not function.



Circle Boundary Tool. Used to create Boundary Circles. A Boundary Circle consists of series of marks enclosing an area. A Boundary Circle is used to mark a region and an alarm will play if you enter or leave the region. Boundary Circles can be used to mark a dangerous area, for example: around a rock. In this case the alarm will be set off if you enter the boundaried area.

Circle boundary areas are displayed as a hatched-out field onscreen.



Closed Boundary Tool. Used to select the Closed Boundary Tool which is used to create a Polygonal Boundary on your chart. Boundaries are used together with alarms to warn you about potential dangers while navigating.

Closed boundary areas are displayed as a hatched-out field onscreen.



Context Help Tool. Used to access help for a visual element of the screen. When this button is clicked, the mouse pointer turns into a combination question mark and pointer. *This feature is currently disabled.*



Course Up Tool. This tool enables (or disables) Course Up mode for the active chart window. Course Up rotates the chart image so that as your boat turns from one heading to another, the chart is always displayed with your heading and with the boat icon pointing up. The use of this feature, along with Range Circles, allows you to create a display which is similar to the display of your radar.



CrystalView Tool. This button is used to enable the CrystalView feature which clarifies raster charts so that they are easier to read when zoomed out.



Current Arrows Tool. This button makes Current Arrows visible on the chart. Current Arrows make it easy to see the direction and speed of the currents. The bigger the arrow, the faster the current is moving.



Decrease 3D Boat Scale Tool. Makes the 3D vessel icon smaller.



Depth Contours Display Tool. Toggles on or off the Passport Depth Contours layer.



Event Mark Tool. Creates Event Marks. An Event Mark is a mark placed at the location of the boat when you click this button. The default name is the date and time of creation.



Ghost Cursor Tool. When multiple chart windows are open, the Ghost Cursor provides a second cursor that visually illustrates where the cursor is on each chart you have open. This is especially useful when using photo and vector charts together, as you can place your cursor on an object on the vector chart and see the corresponding location on the photo.



Goto Lat/Lon Tool. This tool allows you to input the latitude and longitude you want the chart centered on.



Grid Display Tool. This tool opens a plotting grid. You can use it like any other chart.



Hand Panning. This tool allows you to easily move the chart across the Chart window pane. When enabled, the cursor will change into a Hand icon and you will be able to "drag and drop" the chart easily. Press the Hand Panning ToolBar button again, **** or **<Esc>** to turn off Hand Panning.



Increase 3D Boat Scale Tool. Makes the 3D vessel icon larger.



Instant Waypoint Tool. When the tool is selected, left clicking on a location will create an Instant Waypoint. An Instant Waypoint is actually a route consisting of only two waypoints: one at your boat present position and one at the position on which you clicked. It creates the route and activates the second waypoint.



Land Features Tool. Toggles the Passport land data layer.



Leg Range and Bearing Tool. This turns the range and bearing labels of each route leg on and off.



Lights and Buoys Display Tool. Displays a list of options for displaying lights and buoys on Passport Charts. For more information, see the section on Passport Charts in this manual.



Line Boundary Tool. Creates a Boundary Line.



Load User Interface (UI) Tool. This button opens the Load User Interface dialog box which allows you to open a pre-saved layout of all the ToolBar buttons on your screen.



Man Overboard Tool. Immediately places a Man Overboard mark at the vessel's present position. In addition, the Man Overboard mark is made active so that the Console panels will show range and bearing to the mark.



Mark Tool. Used to select the Mark Tool. The Mark Tool is used to create navigation marks on your chart. After selecting the Mark Tool, click on the chart to place a Mark.



More Charts Tool. Displays a menu of installed charts which are available for the current location.



Native Up Tool. When using raster charts, some charts maybe skewed. The Native Up Tool changes the rotation of the skewed chart so it is displayed like a non-skewed chart.



NavBar Tool. Toggles the NavBar on and off.



New Log Entry. Used to add an entry to the ship's log.



Nobeltec Connect. External program window that allows you to connect to the SkyMate system, provided you have SkyMate hardware installed.



Open New Photo Window Tool. This button splits your screen into two vertical windows. A navigation photo appears on one side and the chart that was open prior to this tool being pressed will be open in the other. When the photo opens, it will match the zoom level and scale of the vector or raster chart on the opposite side of the window.



Open Polar Display Window. *Sailing Plus Pack only.* Used to open and display the **Polar Display Window**.



Open Polar Display Settings. *Sailing Plus Pack only.* Used to open and display the **Polar Display Settings Window**.



Options Tool. Used to open and display the **Tools | Options** menu.



Other Features Display Tool. This activates data layers contained on the Passport Charts. These data layers included features such as chart notes and place names.



Passport Data Layers Display Tool. Turns on display of Port Data on the Passport Charts.



Photo Charts Display Tool. This changes the active chart type shown in the chart window to a navigation photo. It also allows you to blend photos with Passport vector charts.



Place Name Search. Directs window and cursor focus to the Search Tab of the NavBar, where you can quickly locate objects and points of interest using Nobeltec's efficient search engine.



PlanBook Tool. This button opens the PlanBook which allows you to manually edit Routes, Marks, Boundaries and Tracks.



Pointer Tool. Restores the mouse cursor to the Pointer Tool which is used to select items for further operations. When you click on an item (such as a mark, waypoint, route or the boat) a gray rectangular border is drawn around that item indicating that it is the currently selected item.



Print Preview Tool. Use this command to display the active window as it would appear when printed. When you choose this command, the main window will be replaced with a print preview window in which the page will be displayed in its printed format. This allows you to see what the printed page will look like before you send the data to your printer.



Print Tool. Use this command to print a chart section, float plan, tide graph or current graph. This command presents the Print dialog, where you may specify the range of pages to be printed, the number of copies, the destination printer and other printer configuration options.



Quilting Tool. This button controls the enabling and disabling of ChartQuilting. ChartQuilting is enabled by default.



Range Circle Toggle Tool. Click this button to display Range Circles around the boat icon. Range Circles provide an easy, visual reference to distances around your boat. They are similar to the Range Circles that can be displayed by some radars. Range Circles are completely customizable and you can change the number of circles, range circle radius, range circle thickness and range circle color.



Range/Bearing: Boat to Point Tool. Creates a range/bearing line from the boat to a point. When you select this tool, a line will be drawn from the boat icon to the mouse cursor. Move to the position you want and click the left mouse button. A mark will be placed with a line drawn from the boat icon to the mark. The range and bearing from the boat icon to the mark will be displayed on the line.



Range/Bearing: Point to Point Tool. Creates a range/bearing line between two points. Click to place the first mark, then click at a second location to place the second mark. A line is drawn between the marks and the range and bearing between the two marks will be displayed on the line.



Raster Charts Display Tool. This changes the active window chart type to raster charts.



Rectangular Zoom Tool. This tool allows you to zoom to a specific part of the chart. Click and hold the left mouse button on the chart where you want to zoom in. Then, drag the mouse cursor down and to the right. You will see a box drawn in the area you're highlighting. This is the area of the chart that will be displayed.



Reset Cross Track (XTE) Error Tool. This button resets the Cross Track Error to zero. This can be a useful tool when you exceed the Cross Track Error limit and decide on a new course to steer. Resetting the Cross Track Error will then give you a fresh start to your intended target.



Right Mouse Button Tool. This tool is designed to make using Nobeltec on a touchscreen monitor much easier. Most touchscreens react to a touch on the monitor in the same way as a left mouse click and do not provide an option for performing a right-click. By clicking the Right Mouse Button Tool, the next item you touch on the screen will be considered a right mouse click instead of a left mouse click.



Route Tool. The Route Tool is used to create routes. To create a route, click to place the first and successive waypoints. To complete the route, double click as you place the last waypoint or press the <Esc> key.



Route Wizard Tool. This button activates the Nobeltec Route Wizard. The Route Wizard lets you select a beginning and ending waypoint and then creates a new route based on a few user-defined criteria.



Save User Interface (UI) Tool. This button opens the Save User Interface dialog box which allows you to save the layout of all the ToolBar buttons on your screen.



Screen Intensity Night Tool. Used to activate Night Colors.



Screen Intensity Normal Tool. Used to deactivate Night or Twilight Colors and return to the normal screen color intensity.



Screen Intensity Twilight Tool. Used to activate Twilight Colors.



Shaded Relief Charts Display Tool. Turns the Shaded Relief feature off and on. Use the small down arrow next to the button to select display and color options for both land and sea.



AIS Targets: Show/Hide Tool. Controls whether any AIS targets are displayed in the Chart window pane or Targets NavBar.



Soundings Display Tool. This tool toggles Passport Depth Soundings off and on.



Streets and Roads Tool. This turns on all the Streets and Roads data contained within the Passport Charts.



Tide Bars Tool. Click to Display Tide Bar icons on the screen.



Tile Windows Horizontally Tool. Arranges the open windows into equally-sized horizontal windows.



Tile Windows Vertically Tool. Arranges the open windows into equally-sized vertical windows.



Toggle Lay Lines. *Sailing Plus Pack only.* Gives you the option to display no lay lines or select from small, medium or large lay lines.



Toggle Lay Lines from Boat. *Sailing Plus Pack only.* Gives you the option to display no lay lines from your boat or select from small, medium or large lay lines.



Toggle Wind Arrows. *Sailing Plus Pack only.* Choose Apparent and/or True Wind Arrows and then select small, medium or large arrows or to display no wind arrows. Clicking the button toggles through settings for both arrows or no arrows.



Toggle 3D Depth Indicator. Gives you the option to display the depth marker, keel marker, both or neither. This button toggles you through available selections.



Topographic Charts Display Tool. This changes the active window chart type to USGS topographic charts.



Tracking Tool. Click this button to enable tracking of your boat. Tracking is the onscreen recording of your boat previous movements.



Vector Charts Display Tool. This changes the active window chart type to vector charts. If you have not purchased Passport Charts, this button will not work.



Video Display Tool. Opens a Video display window, where you can display streaming camera feeds provided your onboard cameras are connected to Admiral.



Weather Overlay Tool. This quickly opens the NavBar to the Weather Tab so that weather predictions can be overlaid on your charts.



Zoom In Tool. Click this button to view a smaller area of the chart.



Zoom Out Tool. Click this button to view a larger area of the chart.

The Console

The Console is a set of small display panels. Depending on the instruments connected to your PC, you can have panels that display pieces of navigational information such as Speed Over Ground, Speed Over Water, Latitude and Longitude, Wind Speed, Wind Direction, Water Temperature and Depth (just to name a few).

In addition to the configuration capabilities, the entire Console may be shown or hidden from view in the program window. To show or hide, select **View | Console** from the main menu. If the Console is being displayed on your screen, quickly remove it by right-clicking on the Console and selecting **Hide Console** from the pop-up menu.

Available Console Panels

Table 16.1 contains all available panels in the Console. Although you may add any panel you wish to the Console, keep in mind that many of these require the corresponding NMEA-compatible instrument to be connected to the computer before data will appear in that panel.

Panel Properties

Each Console panel properties that can be customized to suit your personal preferences. Customization options include: font style, font size, color and weight. In addition, panels may be aligned vertically or horizontally, with or without titles.

Floating and Docked

Console panels, when visible, may either be docked to one of the four sides of the window or they may be left floating. The panel will always stay on top of the other windows in the Nobeltec Navigation Software display. You may move or dock a floating panel by dragging and dropping it onto the Console. A docked Console panel may be made to float by dragging away from the docking area.

Abbreviation	Function	Abbreviation	Function
SOG	Speed Over Ground	<Boat Name>	Vessel Icon's Lat/Lon
COG	Course Over Ground	<Mark/WPT Name>	Active Mark or Waypoint Name and Lat/Lon
VMG-WPT	Velocity Made Good - towards a Waypoint	Cursor Position	Lat/Lon at Cursor Location
XTE	Cross Track Error	Clock	Synchronized to PC Clock
RNG	Range to Active Waypoint	Timer	Count Down Timer
BRG	Bearing to Active Waypoint	Graphic	Helmsman Display
GPS or DR	Displays GPS or Dead Reckoning Location	ETA/TTG	Combined Estimated Time of Arrival and Time to Go
CSR 3D DPT	Displays 3D depth under Cursor	VMG-WND	Velocity Made Good towards Wind
SET	Set	TWA	True Wind Angle
DFT	Drift	POLBSP	Sailing: Polar BSP
BSP	Boat Speed	POLBSP%	Sailing: Polar Performance Percentage
HDG	Heading	LLTTG	Sailing: Lay Line Time to Go
TWS	True Wind Speed	LLDIST	Sailing: Lay Line Distance
TWD	True Wind Direction	UPVMG	Sailing: Best Upwind Velocity Made Good Angle
AWS	Apparent Wind Speed	LLVMGUPS	Sailing: Best Upwind Velocity Made Good Heading to Starboard Lay Line
AWA	Apparent Wind Angle	LLVMGUPP	Sailing: Best Upwind Velocity Made Good Heading to Port Lay Line
DPT	Depth	LLVMGDNS	Sailing: Downwind Velocity Made Good Heading to Starboard Lay Line
WTR	Water Temperature	LLVMGDNP	Sailing: Downwind Velocity Made Good Heading to Port Lay Line
DU	Depth Units	Heel	Sailing: Heel
RBC	Range from Boat to Cursor	Leeway	Sailing: Leeway
BBC	Bearing from Boat to Cursor	DBT	Depth Below Transducer
		DBK	Depth Below Keel

Table 16.1 - Available Console Panels

The Helmsman Display

This display shows the boat heading and position relative to your intended course. The small **red** line points toward course. The **blue** "highway" shows you how close you are to the cross track error limits in the Boat Properties Alarms Tab.

Twilight and Night Display Modes

When on the water at night, any light coming from inside your pilot house or helm station can reduce visibility. In order to increase visibility in moderate to dark lighting conditions (and reduce eye fatigue), Nobeltec Navigation Software includes two on-screen views that decrease the contrast and amount of light coming from your monitor. Night Vision turns the screen into shades of **red**. Twilight Vision changes the screen to shades of gray. Brightness and intensity are adjustable.



NOTE: The two screen intensity options may have an affect on all the software programs on your PC while they are activated.

To activate the Night or Twilight screen intensity modes:

1. Select **View | Screen Intensity** from the Main Menu and then either **Twilight Colors** or **Night Colors**.
2. After the screen switches from Normal Intensity to Twilight or Night display mode, use the slider bar to adjust intensity.
3. When you are finished operating in one of the alternative screen intensity modes, select **View | Screen Intensity | Normal** to return the screen to the Normal intensity mode.



NOTE: You can toggle through the different modes using the **<Ctrl+I>** hot key or you can add the Normal, Twilight and Night display mode ToolBar buttons to the program ToolBar. To return to normal mode from Twilight or Night display mode, click **<I>**.

Help Tips

Another feature that can be of tremendous value is called Tips. The Tips dialog box will appear each time you open the Nobeltec program. You can disable this feature by selecting **Help | Tips** from the Main Menu and clicking the check box in the lower left corner of the Tips dialog. .

Star Navigator

The Star Navigator is a celestial sight reduction tool. This feature is available from the main menu by selecting **Tools | Other Tools | Star Navigator**. See Star Navigator's online help for more information.

Managing Windows

Because you can open as many chart windows as you like, Nobeltec includes tools to help you manage how they are arranged on the screen. To close all open window panes, click **<Ctrl+Shift+F4>**.

Window List

Each time you open a new chart window, that chart is added to a list that appears on the bottom of the Window option on the Main Menu. To view a particular chart that is obscured by another chart, click on **Window** on the Main Menu and then on the name of the chart.

Copy Window

This command opens an additional chart window identical in scale and position to the active chart window.

Tile Vertically/Horizontally

These commands evenly divide the workspace and arrange the chart windows into vertically or horizontally oriented rectangles.

Cascade

Cascade resizes and positions the chart windows so that all title bars are visible.

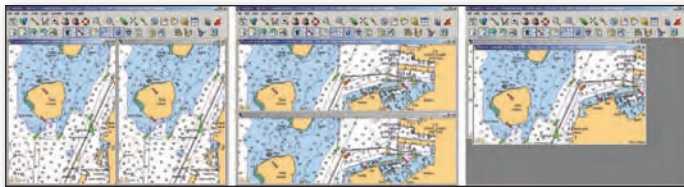


Figure 16.3 - Tile Vertically, Tile Horizontally and Cascade

Save and Load User Interface Commands

You can create and save a number of different types of User Interfaces (UI) for different tasks. For example, you may want to create one UI that you use when fishing and another for a long voyage. Whenever you save a User Interface that you have created, all of the buttons and console panels will be saved. If anything changes on the UI, you can revert to the saved User Interface by using the **Load UI** command.

To Save a User Interface that you have created:

1. Add or delete any ToolBars that you want to use or remove from the program ToolBar and Console.
2. When the ToolBar and Console are set up to your preference select **File | User Interface | Save User Interface** from the Main Menu.
3. A **Save As** browser window will open. Browse to the location you wish to store your UI. (Files are saved with extension .vui.)
4. Name your UI and click **OK**.
5. Repeat Steps 1-5 for any UI layouts you want to save.

To Load a User Interface that you have previously saved:

1. Select **File | User Interface | Load User Interface** from the Main Menu.
2. An **Open** browser window will open. Browse to the location you stored the saved UI file (.vui), select the correct file, and click **Open**.
3. Nobeltec Navigation Software will change in appearance to conform to the saved UI layout. Any changes you make to that layout will not save unless you again Save the UI.

17 On the Water

This chapter puts all of the elements covered in the previous 16 chapters together and gives a general overview of how most people use Nobeltec Navigation Software from day-to-day.

Sea Trials

Before you start using Nobeltec on a regular basis it is a good idea to get out on the water and run some simple tests to make sure that all hardware is performing the way that it should. A sea trial does not take up a lot of time and will give you more confidence in your system. Listed below are some tests that you can perform to test your system.

Turning On the System - Avoiding a Wayward Mouse



TIP: If you are using Windows XP and have a GPS connected to a USB port using a Serial Port to USB Converter, then you may at some point experience a problem known as "wayward mouse".

GPS and other equipment use a standard NMEA 0183 data sentence to communicate. When NMEA made this the standard data sentence for marine electronic equipment, the main type of port on a PC was a serial port. With the advent of Windows XP, most computer manufacturers began to discontinue the use of serial ports, replacing them with USB ports. Keyboards and mice on these systems plug into USB ports. Since the NMEA 0183 data sentence is not compatible with a USB port, the work around is to purchase a converter.

If your GPS is turned on and is connected to a USB port, Windows XP, during the boot up process, may believe that your GPS is a mouse. When Windows Desktop appears, your mouse cursor will begin to bounce all over the screen.

To avoid this problem, connect your GPS to the PC but leave the GPS powered off until boot up is complete. This prevents the wayward mouse problem in most cases. If you follow these steps and still see the mouse jumping on the screen, contact Nobeltec Technical Support.

GPS Test

Boot up your computer and start your Nobeltec Navigation program. Once the program is open, turn on your GPS and make sure that the program recognizes it as a GPS. Once the software recognizes the GPS signal, the

vessel icon should be on a chart at your boat's Lat/Lon position and the GPS panel on the Console should read **GPS OK**.

When you are certain that you are getting a signal, let the GPS and your program run for ten or fifteen minutes at the dock to ensure that there are no interruptions to the GPS signal.

Autopilot Test

Autopilots are complex systems. Differences in settings and installation discrepancies can alter system performance. Rudder size, autopilot gain and heading sensor calibration and sensitivity all contribute to these differences.

Once your autopilot is setup and configured properly, find a safe, vessel-free area to perform this test. Create a route in your Nobeltec Navigation Software that consists of several route legs.

Activate the route and accelerate the vessel to a safe but effective speed for completing the test. Initially, it is better to go slow and then speed up as you gain more confidence. Observe how the vessel travels from one waypoint to the next. Change the waypoint arrival notification as desired. You can choose to automatically activate the next waypoint or to receive a prompt in the Misc. Tab of the **Tools | Options** menu. As you travel along the route observe the steering behavior from one waypoint to the next. Does the autopilot under or over compensate? Adjust the autopilot gain if necessary.

Heading Sensor Test

If you plan to use an Autopilot or a Nobeltec InSight Radar, you should test the Heading Sensor. Head out on the water and try to find an area where your path will not be affected by the wind. Once you have located a suitable area, initialize your heading sensor. This usually involves turning the vessel 720° (360° twice) over a 2½ minute time period.

To determine how to initialize your heading sensor, refer the User's Guide that came with the sensor.

After the heading sensor has been initialized, create a route in Nobeltec that runs through your test area. Keep track of the heading from one end of the route to the other and note whether the heading is true or magnetic. Follow the route and compare the heading of the vessel to the heading sensor. Rotate the heading sensor so that there is little or no discrepancy between the route heading and the sensor heading. Turn the vessel around and head the opposite direction. The heading should be within 1 or 2 degrees of the route heading.

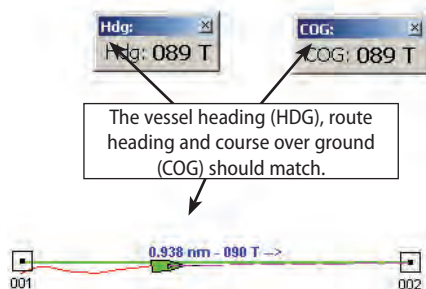


Figure 17.1 - Heading Sensor Test

Putting It All Together

The following section describes in general how you would use all of the features and tools inside of your Nobeltec program to effectively complete a three day trip from Miami to the Bahamas and then back to Miami, through Fort Lauderdale. You can use this section to practice using your program or just read through it to gain a general understanding of trip planning using Nobeltec Navigation Software.

Check the Weather

Make sure there are no weather conditions that will negatively affect the trip for a 10-day window. Start Nobeltec and purchase a single gold level ten day forecast. You could also select to order a subscription and have the weather data sent to you each day. When you have finished downloading the file, review the weather data. It is wise to also check other sources of weather information such as NOAA.

Create a Route

This trip requires you to create one big route or several smaller ones. You could create one big route that loops all the way around or individual routes that go from Miami to Bimini, Bimini to Freeport, Freeport to Fort Lauderdale and Fort Lauderdale to Miami.

For the purpose of this example, create a single route. Draw the route using the Route tool. When finished, name the route something appropriate like "Miami to Bahamas, May 2006". You can also name individual waypoints in the route. These could be named for key events such as snorkeling and diving spots or favorite fishing locations. In addition, name key waypoints along the way that mark stops in your trip such as Bimini, Freeport and Fort Lauderdale.

After finishing the route, lock the route and waypoint(s) so that you don't accidentally delete or move any key route information. To lock the entire route (including all waypoints), right-click on any route leg and select **Locking | Lock Route and Marks**. If you decide to edit the route or a waypoint at a later time, repeat the step above but select **Locking | Unlock Route and Marks**.

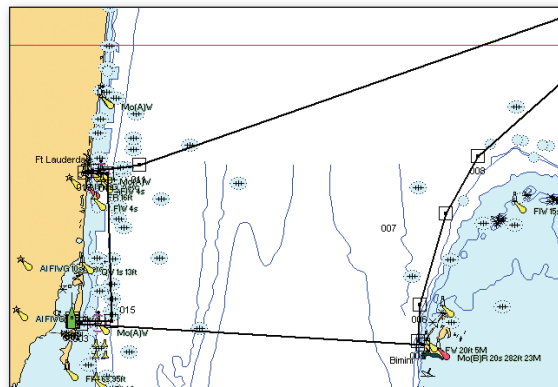


Figure 17.2 - Route Line for Sample Trip

Calculate Your ETA

After you have planned the route, the ETA calculator will automatically open. (Unless you have disabled the automatic ETA calculator for each Route). Use the ETA Calculator to automatically attach the current stations. Next, enter the fuel burn rates into the Estimate Fuel Usage window. Since this particular route will be used over several days, at this time use the ETA calculator to estimate fuel burn only. Click Best Departure Time and enter a vessel speed. For the purposes of this example, enter a speed of 12.0 Kts. The ETA calculator estimates that you will use 244 gallons at 12.0 Kts.

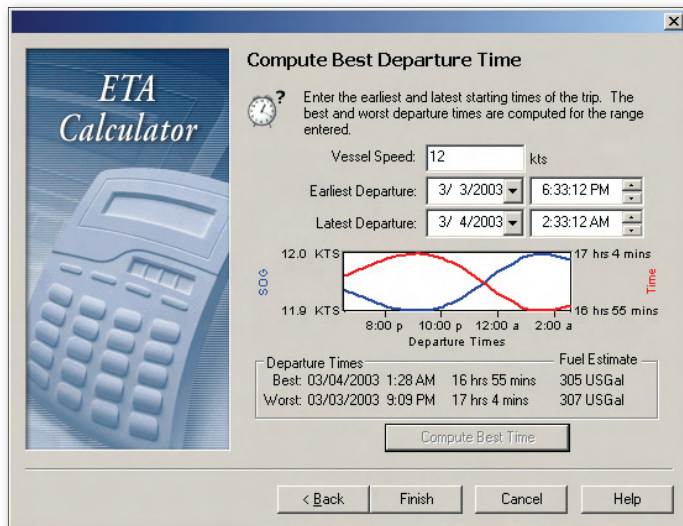


Figure 17.3 - ETA Calculator - Fuel Consumption Calculation

Input into the PlanBook

The rest of the calculations will be completed in the PlanBook. Open the PlanBook and select the Route "Miami to Bahamas, May 2006". Click the Route Detail Tab for "Miami to Bahamas, May 2006". Next, enter a departure date of May 7, 2006 and a departure time of 7:40 am. In the Vessel SOG box, set the SOG to 12 Kts.

After setting the departure date and time and entering the average speed, click on the appropriate waypoints and change them to Layover and enter a layover time. For this example, plan on spending one night each in Bimini, Freeport and Fort Lauderdale. In this case, a SOG of 12 kts results in an arrival time of 11:30 in Bimini (see Figure 17.4). Change the Bimini waypoint into a Layover (Make sure the Layover column is displayed). Next, enter a layover of 20 hours, which results in departure the next morning of 7:30 am. After you have entered this information, click the Update button, to update the waypoints in the list. Repeat the layover process described above for the other waypoints which are Freeport and Fort Lauderdale.

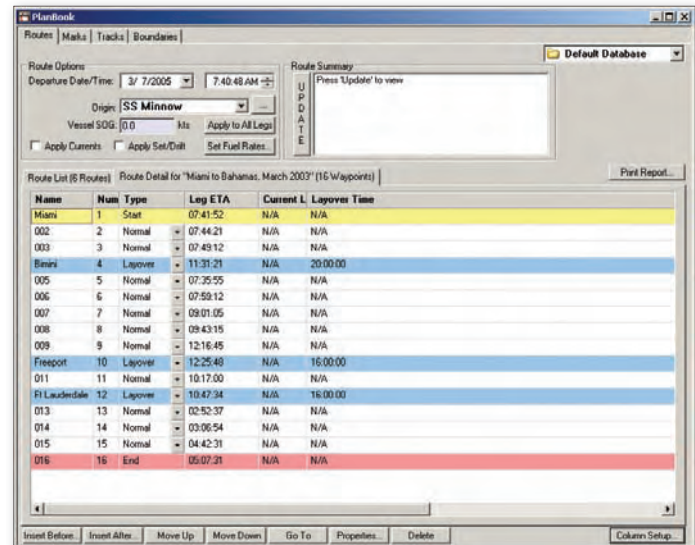


Figure 17.4 - PlanBook - Calculating Layovers

Printouts

After you have completed the route planning in the PlanBook, make some printouts of various points of interest along the route. Areas of interest might include departure and arrival points such as Miami, Bimini or Fort Lauderdale.

Upload the Route

Sometimes it is a good idea to backup the route by uploading it to a GPS or plotter. In the event of computer failure, this will provide you with a backup that you can use to continue navigating along your pre-planned route.

Commence Navigation

Start your computer and your Nobeltec Navigation Software program and then power on the GPS. Set up the chart windows as desired. You might consider using two chart windows tiled vertically or horizontally, with one zoomed in on the chart and the other zoomed out to show a broader view of your surroundings in relation to your vessel.

Activate the route by right-clicking on a route leg and selecting **Activate** from the pop-up menu. The first waypoint in the route should now be blinking which indicates that it is your active target. At this point, you could also turn on vessel tracking to record a path of your trip. This will leave a nice track line on the screen and give you a good representation of how well you are staying on course.

Arrival At Your First Destination

When you arrive at the first destination, Bimini, turn off the tracking and disable the route. Since you plan to spend the night, you can either shut down Nobeltec or let it run during the night. One advantage to letting it run during the night is that if you are anchored offshore, you can create a boundary circle to alarm you if the vessel begins to drift.

Complete Your Voyage

After spending the night in Bimini, continue on with your voyage and repeat the steps indicated in the sections entitled Commence Navigation and Arrival at Your First Destination. Inevitably, in a real world environment, you will make constant changes to your travel plans and may need to make edits to your route and waypoint. Although this section is intended to provide you with an example of how to use the program for voyaging purposes, there are many more features that are not covered in this example.

As you continue to use the program, you will find that there are several ways to perform the same task. Your primary concern is to enjoy yourself and the ease of using Nobeltec Navigation Software and hardware. We hope that you continue to explore all the features that Nobeltec solutions offer.

18 NavView (Admiral Only)

NavView is an alternative user interface offering nearly all of the same features found in PlanView. In addition to providing a maximum viewable area on the screen, NavView can operate in a multiple monitor environment and is ideal for touchscreens and rough water. To enter NavView, press <F9>, click **Window | Enter NavView** or the **Enter NavView** button on the ToolBar. To return to PlanView, press <F9> or Exit.

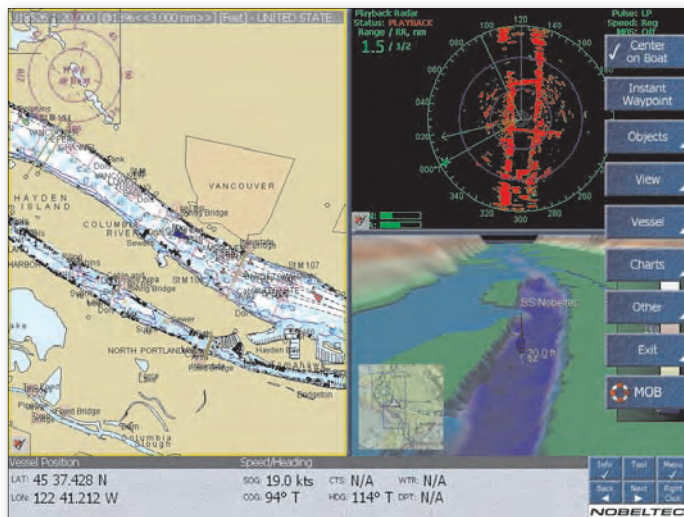


Figure 18.1 - NavView User Interface Mode

Menu Buttons

The list below describes the Menu Buttons that appear on the right hand side of the NavView window. Some buttons also have sub-menus. Click Back at any time to exit a sub-menu.

The main NavView Menu Buttons are:

- **Center on Boat.** Centers active chart window on the vessel icon.
- **Instant Waypoint.** Creates a route with two waypoints; one at the vessel and the other where you click on the chart.
- **Objects.** Lets you place an object, such as a mark, onscreen.

- **View.** Provides you with options for zooming in, zooming out, moving to the Next View and opening the View Manager.
- **Vessel.** Provides a menu for turning on one of the autoscroll modes, turning the chart to course up or leg up, activating tracking, adding range circle or accessing Boat Properties.
- **Charts.** Provides a set of menus for working with the Charts.
- **Other.** Access other, miscellaneous actions such as GPS transfer.
- **Exit.** Provides you with an option to exit Admiral (close the program entirely) or exit NavView and return to PlanView.
- **MOB.** Sets a Man Overboard mark directly beneath the vessel's current Lat/Lon.

Quick Tips

NavView is easy to navigate once you understand how the Menu Buttons function.

1. The blue buttons on the right side of the screen activate available menu options.
2. If there is a small arrow on a Menu Button, that button links to additional sub-menus.
3. Click **Back** to return to the main menu. You may need to click **Back** more than once if you are in a secondary sub-menu.

Menu Button Auto Hide

Menu Buttons can be hidden to maximize screen space. To enable, choose a specified period of time from **Tools | Options | Misc | NavView Menu Auto Hide** (5 seconds, 30 seconds, 1 minute, or 5 minutes), or select **No** to disable. You can also display or hide the Menu Buttons at any time by clicking the Menu Tool Button.

Tool Buttons

The Tool Buttons are a group of six buttons in the lower right corner of NavView. Use these buttons to manipulate what is displayed in NavView and control the ToolBar and InfoBar.

- **Info.** Click to display or hide the InfoBar.
- **Tool.** Click to display or hide the available ToolBars: Passport Chart Layers, Radar Controls, and Radar Tools. These ToolBars function precisely as they do in PlanView.
- **Menu.** Click to display or hide the Menu Buttons.

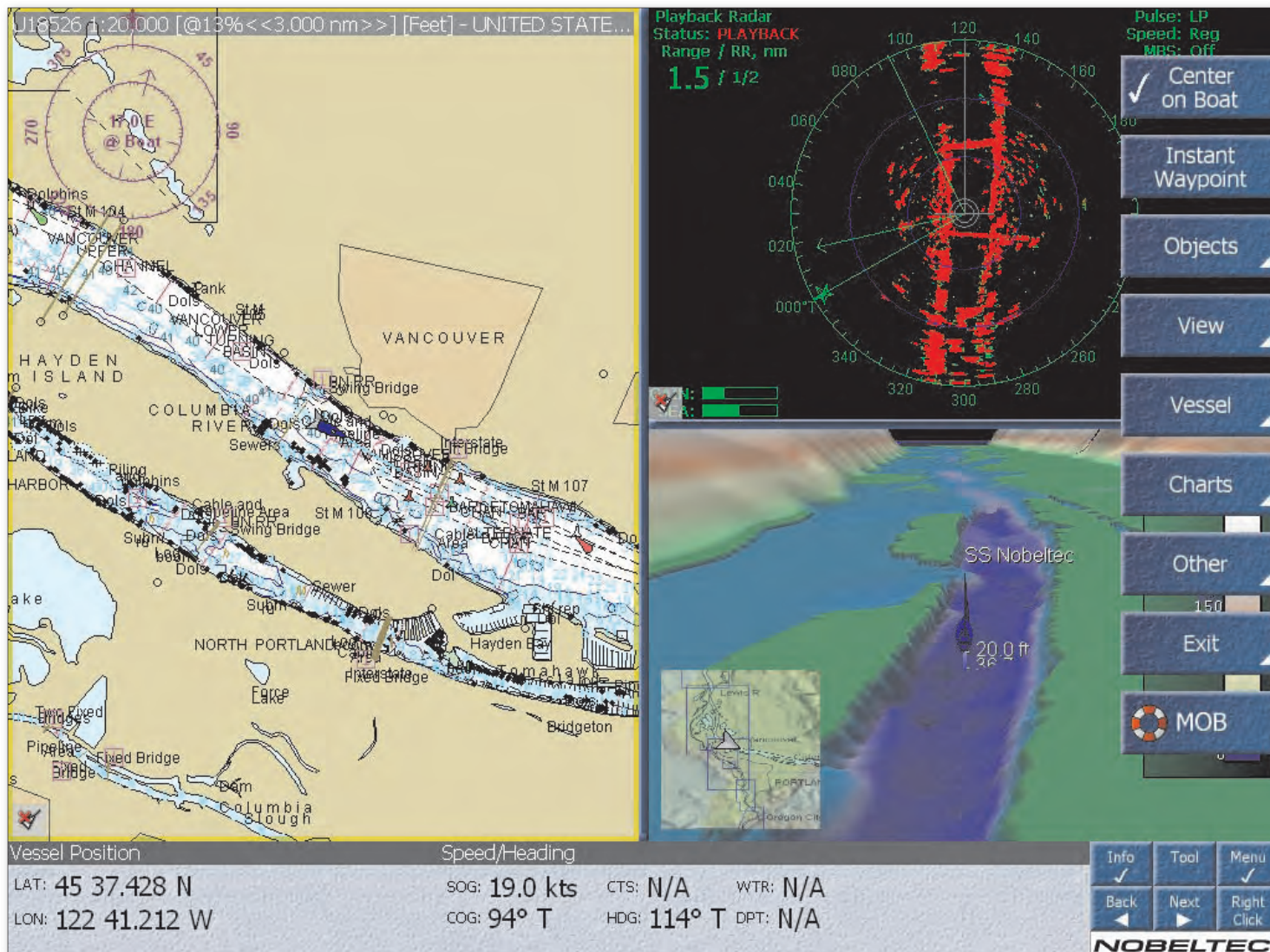


Figure 18.2 - NavView 3-Panel View

- **Back.** Scrolls through available ToolBars or InfoBars.
- **Next.** Reverse scrolls through available ToolBars or InfoBars.
- **Right Click.** Once you click this button, your next mouse-click within the program will open the applicable right-click pop-up menu for the type of information displayed onscreen (Vector chart, Radar, and so on).



Figure 18.3 - Tool Buttons

NavView InfoBar

The InfoBar is located at the bottom of the NavView screen and is designed to display navigation information. Use the **Back** and **Next** buttons to toggle through the different information displays.

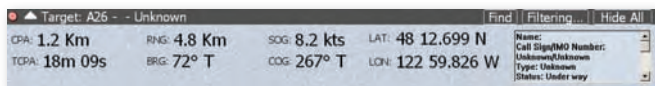


Figure 18.4 - NavView InfoBar

The following list describes information available on the InfoBar.

- **Vessel Position, Speed and Heading.** Provides Vessel Lat/Lon, Speed Over Ground (SOG), Course Over Ground (COG) and Heading (HDG), Course to Steer (CTS), Heading (HDG), Water Temperature (WTR) and Depth (DPT).
- **Screen Cursor.** Displays Lat/Lon of cursor and Range and Bearing from vessel to cursor.
- **Active Mark 1.** Displays Range (RNG), Bearing (BRG), Estimated Time of Arrival (ETA) and Time to Go (TTG) for the active mark. By right-clicking on a waypoint and selecting Use for ETA/TTG Calculations you can display TTG/ETA for a waypoint other than the active.
- **Active Mark 2.** Same as above but shows the Helmsman Display rather than TTG and ETA.
- **XTE/Helmsman Display.** Range, Bearing and ETA to active waypoint along with the Helmsman Display and Cross Track Error (XTE).
- **Time and Status.** Displays Date & Time along with the status of GPS

signal, Tracking and Autopilot.

- **Tides & Currents.** Shows tide and currents information for closest stations.
- **Weather.** Shows weather conditions for your location, based on your selection of weather provider (see **Chapter 13 - Wind and Weather**).
- **GPS/Trip Tab.** This tab displays information about current trip, including time trip commenced, duration, speed, distance and odometer distance.
- **Targets.** Displays target information if available.
- **Status Messages.** These are warning messages and information about various issues concerning your charts, GPS and networking. It is important to note that target threats such as ARPA/MARPA and AIS targets, when detected, are sent to the Targets panel and not the Status Messages panel.

GPS/Trip Tab of the InfoBar

The GPS/Trip tab of the NavView InfoBar is used to view information about the strength of satellite signals used by your GPS. You can also check odometer readings from this tab. Display the GPS/Trip tab using the **Back** and **Next** buttons to toggle through InfoBar options. Fields and buttons in this dialog include:

- **GPS Strength.** Opens the GPS Strength window, which contains a diagram of a relative sky with the location of available satellites.
- **Trip Information.** Data related to this Trip displays in the subsequent dynamic fields of this tab. Fields and buttons include:
 - **Trip #.** Displays your trip number (Trip #1 or Trip #2).
 - **Distance.** Total distance in units travelled during this Trip.
 - **Time Set:** The date and time that the selected Trip started.
 - **Duration.** Hours, minutes and seconds the selected Trip has lasted.
 - **Avg Speed.** Average speed of your boat during the selected Trip.
 - **Min. Speed.** If the vessel is moving slower than 0.2 Kts, distance travelled is not calculated.
 - **Odometer.** This is the total distance travelled while the Nobeltec Navigation Software has been running.
 - **Reset.** Click this button to reset all of the selected Trip's fields to zero.

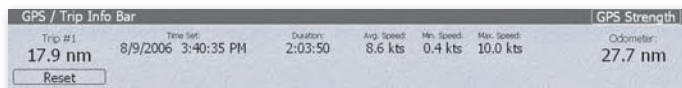


Figure 18.5 - GPS/Trip Info Bar

GPS Strength Window

This window (see **Figure 18.6**) contains the diagram of the available satellites positioned in the relative sky. The GPS Strength diagram is of a relative sky with the location of available satellites. Next to the diagram up to 16 GPS satellites can be displayed as white bars with the height of the bar representing the strength of signal. If the bar is labelled W, it is a WAAS (Wide Area Augmentation System) satellite.

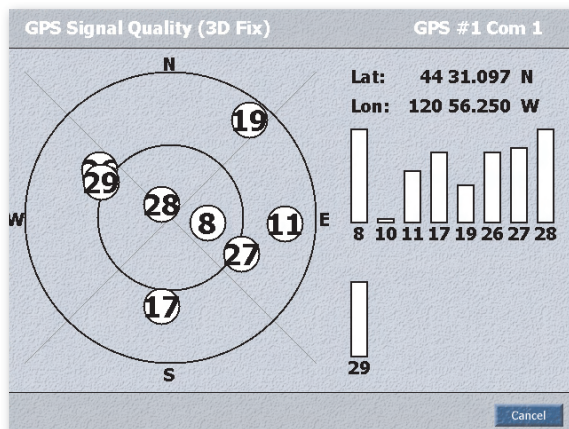


Figure 18.6 - GPS Signal Quality window

On-Chart Warning Indicators



On-Chart Warning Indicators are graphics displayed in the bottom left hand corner of the view window. When these are displayed, there are warning or status messages to read in the System Messages or Target panels. Warning Indicators flash to indicate a pending message. To view messages, double click on the Warning Indicator icon.

View Manager

The View Manager controls the content of the NavView display layout (also called "View"). Each View can contain a single content type or be divided into multiple window panes, each containing a different content type. Use the View Manager templates to edit up to six Views. The <F6> Hot Key toggles through each View you have created.

To create your own NavView screen layouts.

1. Click on the **View** button located on the Menu Bar.
2. Click the **View Manager** button.

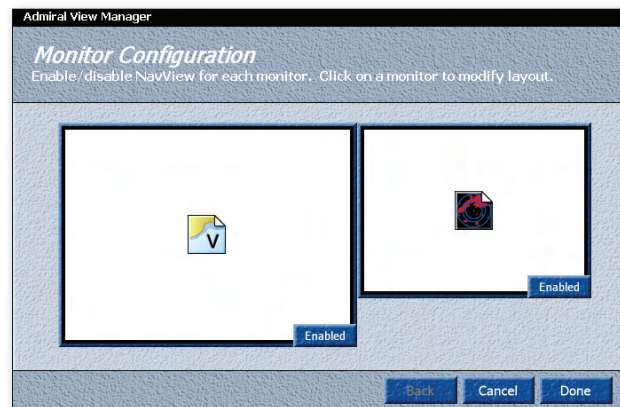


Figure 18.7 - View Manager - Multiple Monitors

3. If multiple monitors are connected to the PC, you will see the dialog shown in **Figure 18.7**. If you are using multiple monitors, select to enable/disable monitors and then click on the monitor for which you would like to create a new layout
4. If you have one monitor, the first screen you will see is **Figure 18.8**.

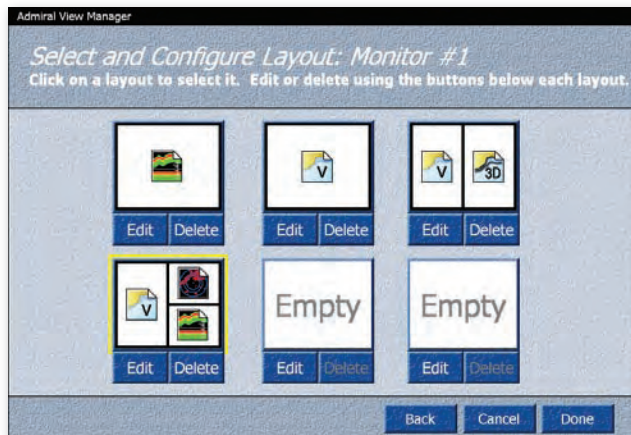


Figure 18.8 - View Manager - Select and Configure Layout

3. The Select and Configure Layout screen (Figure 18.8) allows you to configure each window pane layout for content type. To select a pre-existing layout, click on the large white box containing a graphic. To edit or create a new layout, click the **Edit** button.

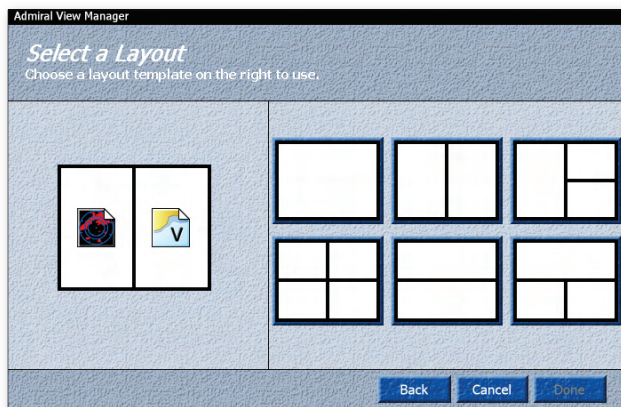


Figure 18.9 - View Manager - Creating and Editing a Layout

6. To modify or create a new layout, select a layout consisting of 1-4

window panes (see Figure 18.9). Click on the graphic that contains the number of panes to use in your new layout.

7. Select the chart type to fill each pane. To fill the active pane (highlighted with a yellow border), make a selection from Vector, Raster, Photo, Topographic, 3D, Radar, Sounder, Video, NavInfo 1-4, Nobeltec Connect, or PlanBook (see Figure 18.10). Repeat until all panes have been assigned a chart type.



NOTE: Certain types of data are only available to display in specific configurations. For example, PlanBook can only display in half-screen horizontal or full-screen layout.

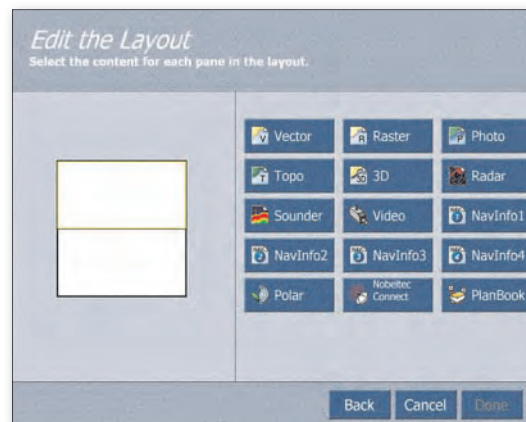


Figure 18.10 - View Manager - Window Pane Types

8. When finished, click **Done**.
9. To view the layout you just created, click the **View** button, then **View Manager** and click on the graphic that contains your new layout. The NavView screen will change to display your layout.

NavInfo

Figure 18.10 displays the content available for the window panes in NavView. NavInfo presents the most important system data, such as Course Over Ground (COG), Speed Over Ground (SOG), GPS Data, etc, in a distinct information panel in large-font type. This content allows you to quickly check data provided by hardware sources, system feedback, etc.



NOTE: You must have connected the appropriate hardware to display specific data types in NavInfo. For example, if you wish to display water temperature, you must have connected a temperature gauge to your computer and set up Nobeltec Navigation Software to receive data from that device.

To display **NavInfo** in **NavView**, you must set up a NavInfo layout using the View Manager or right-click on the current window and select **Show in this pane a NavInfo Panel (1-4)**.

The NavInfo window is sub-divided into content-specific subpanels. Each subpanel contains one type of information, such as Course Over Ground, Rate of Turn, etc, and can be customized as to data content, data layout, such as displaying numeric values or histograms, colors, and update frequency.

NavInfo Right-Click Options

When you are using NavView with a NavInfo window open, you can right-click on that window to open a context menu that contains the following options:

- **Customize Layout.** Opens the Navinfo Wizard where you can configure your NavInfo panels for vertical or horizontal displays and numbers of subpanels for each display.
- **Customize Subpanel.** Opens the **NavInfo Customize Subpanel** window where you can adjust the Display Settings, determine the Update Frequency and select the Data Types for the subpanel.
- **Zoom In.** This option is active only in the strip chart of a nav panel and zooms in on the time line.
- **Zoom Out.** This option is active only in the strip chart of a nav panel and zooms out on the time line.
- **View History.** This option is active only in the strip chart of a nav panel and opens a display of the older data.
- **View Newer Data.** This option is active only in the strip chart of a nav panel and opens a display of the older data.
- **Show in this pane a.** This option changes the current NavView display to the selected option from the below list.
 - **Chart Window.** Chart window contains the following sub-menu items: **Vector Chart Window, Raster Chart Window, Photo Chart Window, USGPS Topographic Window;** or
 - **3D Window, Radar Window, Sounder Window, NavInfo Panel**

#1, NavInfo Panel #2, NavInfo Panel #3, NavInfo Panel #4, Video Window, Polar Window.

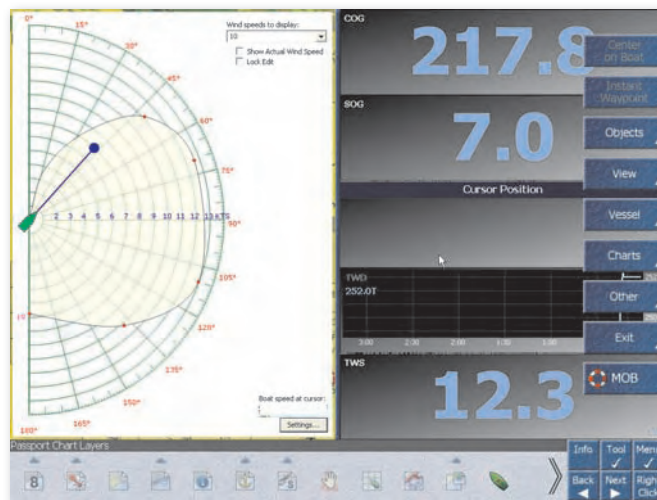


Figure 18.11 - NavInfo Window Pane with Polar Display

To Customize the NavInfo Window

1. Create a View configuration using View Manager that displays a NavInfo window. NavView can display up to four NavInfo windows.
2. Right-click on one of the NavInfo windows and select **Customize Layout** from the pop-up menu.
3. Choose a vertical or horizontal orientation.
4. Select the layout configuration to assign to the window pane. When you select the layout, the NavInfo Wizard closes and the panel automatically updates. See **Figure 18.12**.

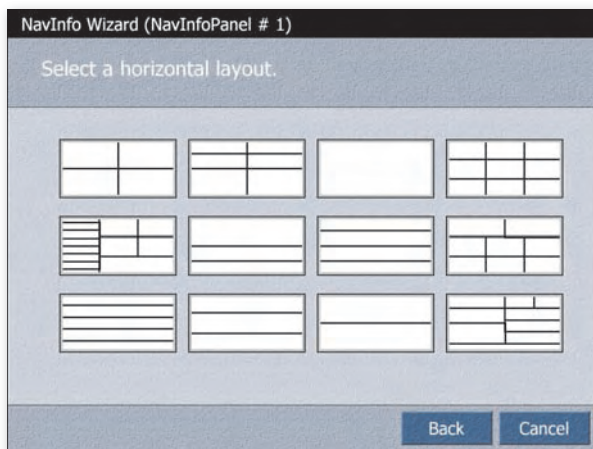


Figure 18.12 - NavInfo Wizard - Select a Layout

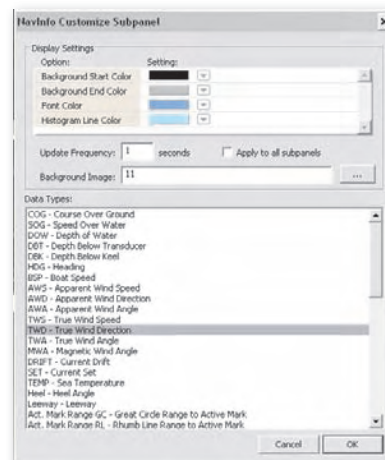


Figure 18.13 - NavInfo Customize Sub Panel

To Customize a NavInfo Subpanel

1. Right-click on a NavInfo window pane subpanel and select **Customize subpanel** from the pop-up menu. The **Customize Subpanel** window opens and you can update the contents of the selected subpanel from this window.
2. There are two main components to a subpanel that you can customize: **Display Settings** and **Data Types**:
 - Display Settings include **Background Start Color**, **Background End Color**, **Font Color**, **Histogram Line Color**, and **Update Frequency** (in seconds).
 - Data Types include all possible NavInfo data such as COG, SOG, wind angles, depth, etc.
 - You can also choose to apply the new settings to all subpanels by placing a mark in the **Apply to all subpanels** check box.
3. If a data type has not been assigned to a NavInfo subpanel, the panel appears with the selected background colors only.
4. Click **OK** when you have finished customizing the subpanel.

Strip Charts

Some NavInfo subpanels are available to be viewed as a strip chart. These panels are marked with a small diamond in the lower left-hand corner. To toggle the current NavInfo subpanel between a data view and a strip chart view, double-click anywhere on the subpanel. To return to the regular Nav subpanel view, double-click on the strip chart.

Tracking Data For Strip Charts

You can store the data points you have selected for your NavInfo Panels for up to 48 hours in Admiral and 24 hours in Visual Navigation Suite. This allows you to toggle to a strip chart at any point to see the most recent values.

Saving Strip Chart Data

Strip Chart data is retained upon shutdown. You can also save your Strip Chart data at any time by selecting **File | Save All | Nav Objects**.

PlanBook

PlanBook is available in NavView as one of your configurable windows. See Chapter 9 - PlanBook for details on how to use the PlanBook.

Switching Configurations

To toggle between multiple NavView layouts, click on **View**. To proceed through each layout, click the **Next View** button or **<F6>** to toggle forward through all configured views. **<Shift+F6>** toggles in the reverse direction.

Making Changes in NavView

Admiral supports nearly all of the settings that are found in the PlanView display version of the software. You do not have to switch to PlanView mode in order to make detailed changes. The program options are accessible from NavView. Most program options are configured using the following methods.

The Tools | Options Dialog

The **Tools | Options** dialog is covered in detail in **Chapter 8 - Properties & Options**. To access this menu:

1. Click the **Other** button on the main NavView menu.
2. Click the **Options** button and the **Tools | Options** dialog will appear.
3. When finished using the **Tools | Options** dialog, click **OK**.

Menus

You can change the look of NavView by turning items such as the Menu Buttons and the InfoBar on and off. When these items are hidden, the entire screen is dedicated to just the chart, providing you with a full screen view of your surroundings. To hide and display these items, use the following steps.

1. Click the **Menu** button in the lower right corner to hide and redisplay the Menu buttons.
2. Click the **Info** button and the InfoBar will be shown or hidden.
3. Click the **Tool** button to hide or show the Tool Bar.

Right Mouse Menus

The Right Mouse Menus still appear in NavView just as they would if you were operating in PlanView. If you are using a touchscreen monitor, you can use the Right-click Menu Button to perform right-clicks without a mouse.

Multiple Monitor Support

Many Windows® operating systems support more than one monitor. Nobeltec has optimized Admiral to take full advantage of multiple monitor configurations. However, in order to use the Multi Monitor function in Admiral, you must have an additional video card and monitor. If you are using Windows XP, some single video cards can even be treated as two. Check the documentation that came with your computer.

Video Cards

To set up your multi-monitor installation and configure your video cards:

1. Install additional video cards into your computer.
2. Open the windows control panel and select **Display**.
3. Click **Settings** and select **Multiple Monitors**.
4. Choose the resolution of the displays. Click **OK** when finished.

Using Multiple Monitors

When you are using multiple monitors, only one pane (or monitor) will have the focus. When a pane has focus, it is drawn with a yellow outline. All keyboard commands are sent to that pane. To move focus to another pane click on the pane you want to use.

19 Networking

General Benefits

Benefits of using a network on your vessel include:

- **Improved Uptime/Redundancy.** In case of computer failure, users can immediately switch to a different computer.
- **Cost Savings.** Passport chart sharing allows multiple computers to share a single copy of charts.
- **Less Wiring.** A wireless or CAT-5 network can be used instead of wiring each NMEA producing device to each computer.
- **Redundance.** Using a recommended network configuration, a redundant system can be installed in a very short time.

GlassBridge™ Network (Admiral Only)

Using Nobeltec's GlassBridge Network, you can connect two or more computers that have Admiral installed on a network in order to share data and charts. Networking adds redundancy, enhanced performance and reliability. You can share data such as routes & marks, NMEA data, radar images and even Passport charts, from one computer to another.

This chapter discusses the features of networking. Some of these features are specific to the GlassBridge Network only.

Shared Information

Chart Sharing

Due to restrictions required by many global hydrographic offices, each copy of Nobeltec Navigation Software that you have on your vessel is required to have its own set of charts.



NOTE: The GlassBridge Network allows you to share Passport Charts between computers. This saves money and makes installing charts easier.

Data Sharing

Networking provides support for sharing navigation objects from one computer to the next. Create a route on one computer and move it to another without having to copy it onto a floppy drive or other portable

media. When sharing data on a network, Nobeltec Navigation System allows you to set one computer as the Server. The computer that is specified as the Server is where all your routes, marks, tracks and other data are stored. As long as the other computers on your vessel are connected to the network, they can grab any data that is contained on the PC identified as the Server.

NMEA Data Sharing

In a networked configuration, NMEA data such as a GPS signal can easily be shared between computers. One computer might receive GPS and heading data while another is wired to receive depth or wind information. Regardless of where the instruments are located, this data can be shared across the network. Nobeltec Navigation Software receives NMEA data information into the COM port (on an installation with a Dongle) and can broadcast it onto the network. Sharing NMEA data requires the use of a security Dongle which is covered in greater detail on [Page 3](#).

Sounder Sharing (GlassBridge Network Only)

If you have purchased and installed a Nobeltec InSight Sounder, you can share Sounder data to any computer connected to the GlassBridge Network. Click [Tools](#) | [Options](#) | [GlassBridge Network Tab](#) to setup Sounder Sharing.

All systems attached to the GlassBridge Network will see all data sent on the network by the InSight Sounder. Any Sounder window open on any networked PC will mirror the Sounder window on any other networked PC.

Radar Sharing

If you have purchased and installed a Nobeltec branded radar or radars, you can connect them to the network and all the computers connected can use a single radar image that you select. For example, you might have a Nobeltec radar on your vessel and three computers at different locations all on a network. All three computers would be able to display the radar information on their screen.

Security Dongle

When you purchase Admiral 8.0 or later versions, you will be provided with a hardware security Dongle. There are two ways to secure your software; with a Dongle or without. When Admiral is installed with a Dongle, all features are available. When installed without a Dongle, the program can be used for planning/monitoring but all COM ports and advanced networking features are limited. When used without a Dongle, the program can receive NMEA

input from the network but cannot send data to an autopilot or other NMEA device. This type of installation provides the power of networking without an increase in cost.

NOTE: Only one copy of Admiral without a Dongle is permitted to "listen" to shared NMEA data on the network.

Installing Admiral Without A Dongle

To install Nobeltec Admiral without a Dongle, install the program. When prompted, input the serial number provided to you or printed on the Dongle tag to generate a SiteKey which secures the installation (see **Page 3**).

Configurations of GlassBridge Networking

The section below is devoted to two typical networking examples.

Example 1

Example 1 is a typical installation that includes two semi-redundant computers. One computer includes Admiral and a Dongle and the other includes Admiral without a Dongle. This particular configuration is easy to setup and use (see **Figure 19.1** below).

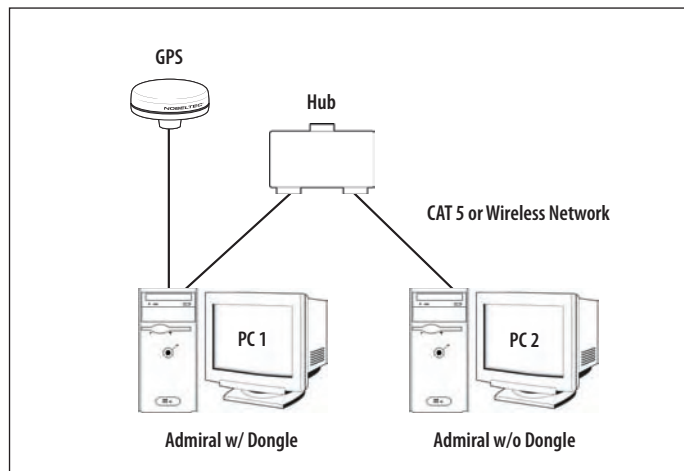


Figure 19.1 - GlassBridge Configuration - Example 1

All NMEA devices are connected to PC1. The second computer (without the Dongle) serves as a backup computer. If the primary computer should fail for any reason, the secondary computer can replace the primary. The secondary computer can also share NMEA data and serve as a monitoring software station or planning station.

In this example, the incoming NMEA data is shared. You can also share U.S. Passport charts, although not via the network. Charts must be loaded onto each computer, which is possible because they both share the same serial number. If you purchased Nobeltec's Passport Deluxe regions, , etc. These can be installed onto both computers as well.

Example 2

Example 2 is a more sophisticated network configuration than was shown in Example 1. In Example 2, the network includes three computers that are fully redundant. Each computer includes a copy of Nobeltec Admiral and each PC also has its own Dongle (see **Figure 19.2**).

In Example 2, each computer shares charts over the network including U.S. and International Passport charts. Raster and photo charts must be installed on each computer manually. All NMEA data can be shared across the network. Since each computer has its own Dongle, NMEA producing devices can be connected to any computer.

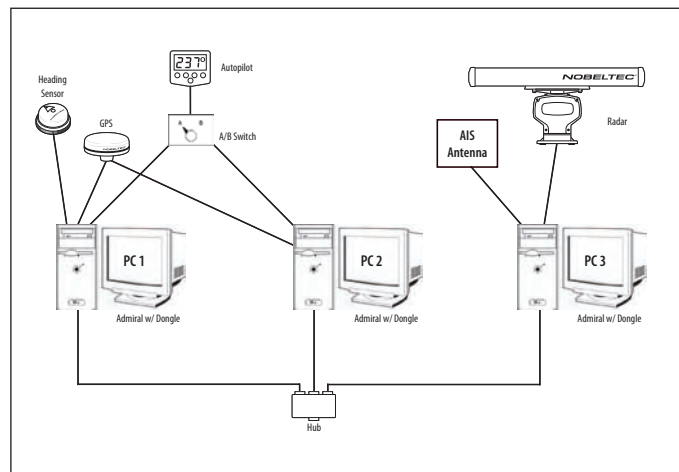


Figure 19.2 - GlassBridge Configuration - Example 2

This network configuration also allows for the sharing of Nav Objects. In order to share Nav Objects, one of the PCs is identified as the Server. Data can be obtained by selecting File | Navigation Objects | Import Nav Objects from the Main Menu.

Setting Up the GlassBridge Network

This section covers how to setup each of the two previously described examples. It might be helpful to review **Figure 19.1** (Example 1) and **Figure 19.2** (Example 2).

Setting Up Example 1

As described earlier, Example 1 includes two computers that are semi-redundant. Follow the steps below to setup and configure a system like the one shown in Example 1.

1. Install Admiral on both computers using the serial number on the Dongle.
2. Install all of the charts on both computers. In addition, install any Passport vector charts that you might have purchased as well as any of the Passport Deluxe data such as raster charts, photo charts, etc., as you see fit. For more information on installing charts, please refer to **Chapter 2 - Installation** for more information.
3. Connect the Dongle to one of the computers. For the purposes of these instructions, let's call this computer PC1.
4. Attach any navigation devices such as a GPS to computer PC1.
5. Connect the two computers to a hub or wireless network. Make sure that the network supports TCP/IP networking.



NOTE: For detailed network connection information, see your installer or documentation provided by the equipment manufacturer.

Admiral uses an auto-detect feature to automatically broadcast the NMEA data and to automatically receive data that is detected on the network. Connect the two computers and Admiral will determine how to share the NMEA data that is available. If you want to explicitly configure data sharing options, then you can select/deselect the options as described in the section **More Information About Data Sharing** later in this chapter.

Behavior of Example 1

This is a simple network installation. The main benefit is that the GPS Information is shared on the network and that the charts are also installed onto both computers. The vessel icon on PC2 will move on the screen based on the GPS input from the network. If there is ever a problem with the primary computer, you can easily swap the two computers.

Setting Up Example 2

A fully redundant system requires at least two Admiral units and two Dongles (more may be added if desired). This installation takes advantage of all the features that the GlassBridge Network provides. To install and configure a system like the one shown in Example 2:

1. Install Admiral and a Dongle on each computer.
2. Install the Passport charts on one of the computers. Later in the setup and operation you will have the opportunity to share the charts across the GlassBridge Network.
3. Install the raster, photo, topographic charts on each computer as desired.
4. Connect the GPS and other NMEA input devices to at least one of the computers. If desired, you can use an A/B box and connect the inputs to both computers.
5. Connect output cables, through an A/B box to the autopilot and any other device, as required.
6. Connect all computers to a hub, router or wireless network. Make sure that the network is setup to support TCP/IP networking. (Nobeltec recommends a router or switch capable of DHCP address service for the best performance).

Setting Up the Navigation Inputs On the Client Computer

Each computer that is directly connected to a NMEA producing device (GPS, etc.) needs to be configured to receive this information. See **Chapter 3 - GPS Setup** for more information.

Configuring the GlassBridge Network Options

1. Disconnect all the computers from the GlassBridge Network and then start each copy of Admiral.
2. Verify that each installation is working properly. After you are satisfied with each setup then proceed to the next step.

3. Physically connect all computers to the network.
4. Start with PC1. Click **Tools | Options | GlassBridge Network**. The network ID will default to the name of the computer. If you would like to change the name, click in the dialog and enter a new name.
5. Click **Enable Advanced Networking**.
6. Select **Advanced Networking Options**. To use these features see the section called **Advanced Networking Settings** later in this chapter.
7. Click **Radar Sharing** if appropriate. This setting must be selected on each Admiral installation that will share data.
8. Click **Sounder Sharing** if appropriate. This setting must be selected on each Admiral installation that will share data.
9. Click **Routes and Marks Home** to select a PC that will be the Server for the other computers on the network. See the section entitled **Routes and Marks Home** later in this chapter for more information.
10. Click **Accept Nav Objects From Other Stations** and choose either **Prompt** or **Accept All**. See later in this section for more information.
11. Click **OK** when finished.
12. Repeat steps 4-11 to configure each computer.
13. Options will take effect the next time the program is started.

Behavior of Example 2

This type of installation provides a redundant system that is powerful in a number of ways. As noted earlier, radar images are available on both computers (if connected). Charts are automatically copied at each computer and navigational objects are easily shared between computers. If you use an A/B switch on the autopilot, a second computer can serve as the primary navigation station with ease.



NOTE: For safety reasons, Admiral does not send autopilot sentences across the network. You must connect the autopilot directly via a COM port. This connection must be made from the computer that has the active route.

More Information About Data Sharing

Data sharing is configured on the **Tools | Options | Data Sharing** Tab. The two types of data that can be shared are Processed and Raw Data.

Raw Data comes into the computer from any NMEA device. Processed Data is produced in the Admiral program. GPS position is an example of Raw NMEA

Data. In a situation where you have more than one GPS connected to one of the computers on the network, typically port priorities are used to "prefer" one GPS over another. This official type of information about the vessel is referred to as Processed NMEA Data or the Nobeltec Packet. By default, Admiral will share Processed Data on the GlassBridge Network. By setting up Admiral in this way, you do not have to set a priority for position on each of the other computers on the network.

Processed NMEA Data

There are four options for configuring how Admiral handles Processed Data.

Auto Detect Mode: Auto Detect Mode automatically listens to the GlassBridge Network at startup to determine whether to send Processed NMEA Data to other computers or to listen. This decision is based on what network computers are currently doing and what navigation inputs are directly (physically) connected to the computer. This is the default setting.

Send Processed NMEA: Requires Admiral to send Processed Data to the network.

Listen for Processed NMEA: Explicitly listens to Processed Data.

None: Select this option and no Processed Data is sent or retrieved.

Raw NMEA Data Sharing

Raw NMEA Data Sharing is used to send Raw Data to the network so that each computer on the network can receive all inputs (Raw Data).

Send NMEA Data

If there is an NMEA data source connected to the computer through a properly configured input COM port, this option will send data over the network, allowing other computers to access that data.

Listen to NMEA Data

Use this option to receive Raw NMEA Data from all other networked computers.



NOTE: Nobeltec recommends using the processed NMEA data sharing. In cases where both Processed and Raw data is received by Admiral, Processed Data takes priority. It is more efficient and also reduces configuration issues. If you would like to share NMEA data that is not vessel related, such as AIS target information or external Radar targets, send raw NMEA data should be enabled.

Creating a Routes & Marks Home

Prior to sharing (importing and exporting) navigation objects (routes, marks, boundaries, etc). between computers on the GlassBridge Network, one computer must be designated the Routes and Marks Home.

To setup a computer as the Marks and Routes Home:

1. Click **Tools | Options | GlassBridge Network**.
2. Click **Enable Advanced Networking**.
3. Place a check-mark in the box next to Routes and Marks Home.
4. Select one of the options in the drop-down list box.
5. When finished, click **OK**.

To copy objects to and from the Marks and Routes Home:

1. Click **File | Navigation Objects | Import {or Export} Nav Objects**.
2. At the top of the dialog click to choose the **Marks and Routes Home in Import From/Export To** drop-down list box.
3. Select the objects that you would like to transfer (or select Import All or Export All).
4. When finished, click **OK**.

Advanced Networking Settings

Advanced network features include chart, radar and sounder sharing.

Sharing Charts

To Share Charts on the GlassBridge Network:

1. Click **Tools | Options | GlassBridge Network**.
2. Click **Enable Advanced Networking**.
3. Click **Chart Sharing** and then choose from one of the three available options (Ask, Yes or No). Selecting **Ask** will prompt the user each time the computer is started whether or not to share charts. **Yes** will share all Passport Charts each time the program opens and **No** turns Chart Sharing off.

Sharing Radar

If you purchased a Nobeltec InSight Radar 2 (IR2) and it is connected to your system, the radar data is shared on the network automatically. No additional GlassBridge Network configuration is necessary in order for this data to be

propagated on the network. However, if you have one of the first generation InSight Radars, to share radar data on the network, you will need to follow the instructions listed below.

1. Click **Tools | Options | GlassBridge Network**.
2. Click **Enable Advanced Networking**.
3. Click **Yes** or **No** for the Radar Sharing drop-down box.
4. When finished, click **OK**.



NOTE: InSight Radar users will need to run the Radar Wizard on each computer that needs to view radar. Refer to the Radar User's Guide for further instructions on using the Radar Wizard.

Sharing Radar Targets

After acquiring MARPA Radar targets using Nobeltec Admiral, it is helpful to share these targets with the other computers on the GlassBridge Network. To do this, click **Tools | Options | GlassBridge Network** and then click **Share RADAR Targets**. Any computer with this setting will share MARPA targets on the GlassBridge Network.

Sharing Sounder

If you have purchased and installed a Nobeltec InSight Sounder™, you can share Sounder data to any computer connected to the GlassBridge Network. Click **Tools | Options | GlassBridge Network Tab** to setup Sounder Sharing.



NOTE: The following Sounder settings are NOT shared across the network: Sounder COM port configuration, UDP port configuration, colors and all options set using the **Tools | Options | Sounder Tab**. **EXCEPTION:** **Tools | Options | Sounder Tab: Transducer Offset, Temperature Calibration, Speed Calibration** and **50 and 200 kHz Gain Calibration** settings can be shared across the network.

Any networked computer can alter the Sounder controls. Sounder controls available to be manipulated by any computer attached to the GlassBridge Network include: Split type, Fish/Cruise/Manual, demo/live, range/auto-range, shift, frequency, gain, clutter, signal level and noise.

All systems attached to the GlassBridge Network will see all data sent on the network by the InSight Sounder. Any Sounder window open on any PC will mirror the Sounder window on all other PCs on the network.

In Live and Demo mode, all "pings" are shared across the network. In Playback mode, pings are not shared.

InSight Sounder users not connected to Sounder via an RS-422 cable will need to run the GPS/Port Setup Wizard on each computer that needs to view Sounder data. Refer to the InSight Sounder User's Guide for further instructions on using the GPS/Port Setup Wizard.

Sharing Active Routes, Marks and Waypoints

When navigating, it is very useful to see the active waypoint on all computers on the GlassBridge Network. To share this information between computers, click **Tools | Options** and then select the **GlassBridge Network** Tab. Once the GlassBridge Network Tab options are on your screen, click **Accept Active Waypoints from other Computers**. Whenever another station creates or moves an active waypoint, this station will update accordingly.

Troubleshooting

The following paragraphs contain a few standard troubleshooting tips for Networking. Since there is not one standard brand of networking equipment, keep available the User's Guides for your hub, switch or router.

Test the Cabling

1. Start all of the computers on the network.
2. Check status lights on the hub/switch/router for each computer. (If your equipment does not have status lights, check the status indicator inside Windows).
3. Verify cable connectivity and power supplies.

Test the Glass Bridge Network

1. Start Admiral.
2. Click **Tools | Options** and then the **Glass Bridge Network** Tab.
3. Click **Network Statistics**.
4. If the computer is connected to the Glass Bridge Network, the system name column will be populated. If other computers on the network running Admiral, you will see them listed as well. Serial numbers and other fields will also be populated.

How to Use the Glass Bridge Network Test Utility.

This utility will test UDP (one of the networking protocols that is running behind the scenes).

1. This can be done with or without Admiral running.
2. Click **Program Files | Nobeltec | Support Tools | Network Test Utility**.
3. This utility can send and/or listen to UDP data which is the protocol Admiral uses to send and receive NMEA data. Run this tool on each computer without running Admiral or use both Admiral and the utility in combination. The utility will display data sent from Admiral as it receives it, both locally and across the network, allowing you to determine if the problem is related to the software or the hardware.

Troubleshooting Chart Sharing

To share Passport Charts between computers on the GlassBridge Network, each copy of Admiral must have its own security Dongle in place. From the GlassBridge Network Tab in the **Tools | Options** menu, be sure that the **Enable Advanced Networking** option is checked and that the Chart Sharing option is set to **Yes** or **Ask**. When each copy of Admiral starts up, it will attempt to join the GlassBridge Network. As long as Chart Sharing is enabled, Passport vector chart sharing is automatic. Messages indicating that charts are sent or received will appear in the Status Messages Tab of the NavBar. If Chart Sharing is not working properly, please contact technical support.

Clearing Network Charts

If you have selected Chart Sharing, Admiral will check the other computers on the Glass Bridge Network for charts not currently installed on your computer. It will install them locally if they are on another computer. If you are not connected to the other computers on the GlassBridge Network, the charts are not permitted to be displayed.

If at some later time you wish to uninstall the network charts because the computer containing the permits will not be available or to refresh the collection of shared charts across the Glass Bridge Network, then use the following procedure.

1. Start Admiral and click **Tools | Options** and then click on the **Glass Bridge Network** Tab.
2. Click **Clear Network Charts**.
3. Click **OK**.

20 Target Tracking

Nobeltec Navigation Software tracks five types of targets:

- **ARPA (Automatic Radar Plotting Aid) and MARPA (Mini Automatic Radar Plotting Aid)** targets transmitted by your Radar (*Admiral only*).
- **AIS (Automatic Identification System)** target tracking from a dedicated AIS receiver.
- **Digital Selective Calling (DSC)** radio input. DSC transmissions display vessels similarly equipped with DSC radios in the immediate (20-mile radius) vicinity.
- **Seetrac® Tender Tracking™**. This Plus Pack (*Admiral only*) provides up-to-the-minute target data about smaller affiliate watercraft (called "Tenders"), including smaller boats, jet skis, wave runners or even passengers carrying a wireless Seetrac Tender Unit (STU).

This chapter is primarily devoted to AIS and DSC target tracking. See **Chapter 21 - Radar** for more in-depth ARPA/MARPA target tracking information and **Chapter 25 - Tender Tracker** for more information about Tenders.

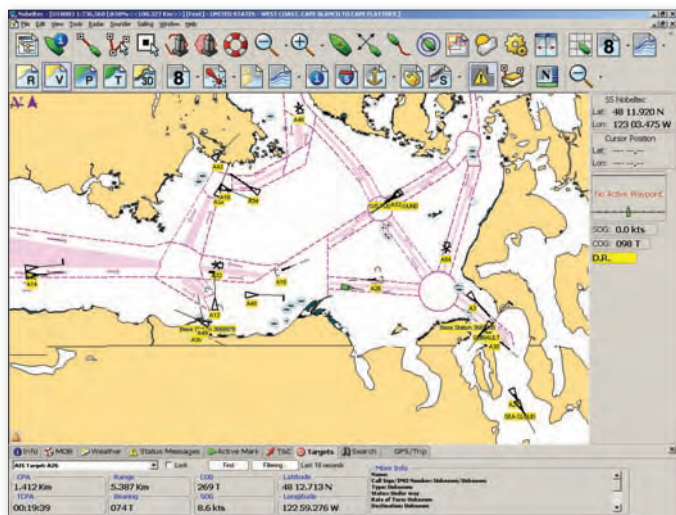


Figure 20.1 - Targets as they Appear in the PlanView Chart Window Pane

Targets Onscreen

Target details can be displayed in the Targets tab of the PlanView NavBar or NavView InfoBar. When your Radar, AIS, DSC and Tender Tracker devices are connected to your computer and configured properly, these targets can also be displayed in the Chart window pane.

There are three main components to target tracking in Nobeltec Navigation Software:

- Onscreen representation of targets in the Chart and Radar (if selected) window panes.
- Target data displayed in the Targets tab of the NavBar or InfoBar.
- Configuration of target display using the Targets Tab of the Tools | Options menu.

Prior to Setting Up Target Tracking

In order to properly set up Target Tracking, you must first install all target tracking equipment. Target Tracking requires that target information is received from one or more of the following sources:

- A **GPS device** (*required for valid target data*).
- A **Heading Sensor** (*required for valid Radar target data*).
- An **AIS Transceiver/Receiver** outputting valid AIS sentences to the computer.
- A **DSC radio** transmitting DSC sentences.
- A **Seetrac® Tender Tracking™ System Base Unit (SBU)** transmitting Tender data to your computer.
- Radar transmissions from either:
 - A **Nobeltec InSight Radar 2 (IR2)** connected to the computer. The IR2 is a radar specially designed by Nobeltec to send digital imagery directly to a personal computer through your computer's Ethernet port; *or*
 - A **Standard External Radar** connected to a **Nobeltec InSight™ Radar 2 - Black Box (IR2-BB™)**, which is in turn connected to your computer. The IR2-BB is a specially designed hardware component that converts the analog output from most existing, industry-standard radars into a digital stream that can be used by NNS. The benefit of this option is that it does not require a complete retrofit of your radar system. Connecting this device to your computer is accomplished through a standard USB port.

Setting Up Target Tracking

To set up Nobeltec Navigation Software to track targets:

1. Open **Tools | Options | Targets** (see **Figure 20.2**).
2. Click the down arrow next to **Display ARPA Targets** (*Admiral only*) in the upper portion of the dialog box and select **Yes**.
3. *If you have a DSC radio connected*, click the down arrow next to **Display DSC Targets** and select **Yes**.
4. Click **Enhanced AIS Filtering...**
5. From the AIS Filtering window, place a check-mark in the **Display AIS Targets** check box.
6. Click **OK**.
7. *If you have purchased and installed the Tender Tracker Plus Pack*, see **Chapter 25 - Tender Tracker** to set up Tender Target Tracking.
8. Click **OK** to close the **Tools | Options** window.
9. Click the **NavBar | Targets** Tab or **InfoBar | Targets** in NavView.
10. Click the down arrow on the target list to view all targets in the area. If no targets are listed, verify that the radar and AIS receiver are properly set up and configured to send data to the computer.
11. Targets will appear on the Chart window pane at their Lat/Lon. Select a target from the displayed Target list in the NavBar or InfoBar and click **Find** to center it on the chart.

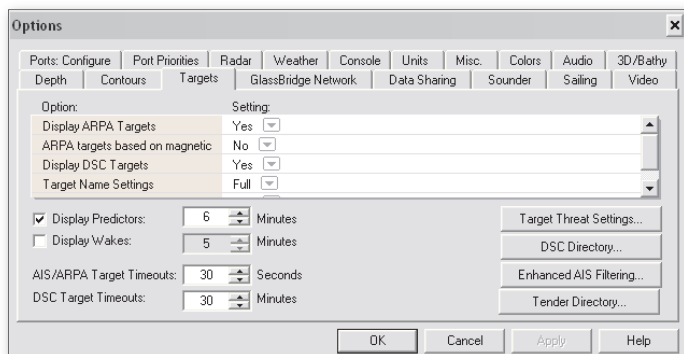


Figure 20.2 - Tools | Options - Targets Tab

Configuring Nobeltec Software to Receive AIS Data

1. Open **Tools | Options | Ports: Configure**.
2. In the **Input Ports** column, place a check-mark next to the COM Port to which your AIS device is connected.
3. Click **Configure This Input Port...**
4. Set the Port Speed (baud rate) to match the baud rate of your AIS device. This setting is device-specific, but 38400 is standard.
5. Click **OK** to close the COM Port Input Configuration window.
6. Click **Apply**.
7. Click **View Data** to open the Incoming Data Display window and verify that your computer is receiving AIS data (you must be in a location where AIS data is available). All NMEA data currently being received by the computer will display in this window, including GPS and any other NMEA data output devices connected to your computer. AIS data is in the form of an AIVDM or AIVDO sentence.
8. When you have finished, click **Done**.
9. Click **OK** to close **Tools | Options**.

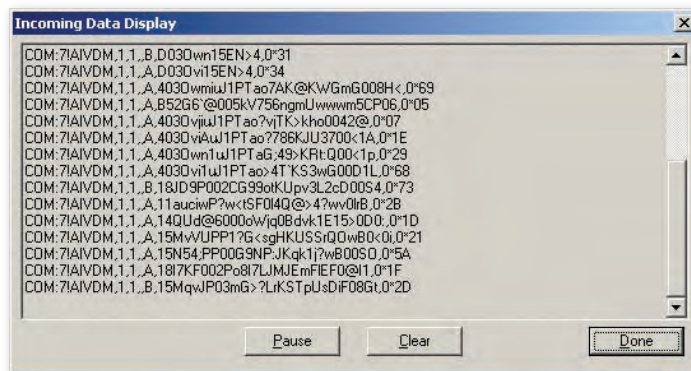


Figure 20.3 - Incoming Data Display Window

Changing Target Appearance

To display Wakes and Predictors:

1. Open **Tools | Options | Targets**.
2. Place a check-mark in the **Display Predictors** check box to show an extension line from the target to its projected trajectory.
3. Click **Display Wakes** to see how a target has moved over time.
4. Click the small down arrow next to the **Target Name Settings** option to change the appearance of the target names (Full, Short or None).
5. Click **OK** to complete these changes.

NOTE: Tender Short and Full names are identical - either option displays the description of the Tender, as input into the Tender Directory.

To change Tender Target colors:

1. From an open Chart window pane, right-click on the Tender.
2. Select **Tender Color** from the pop-up menu.
3. Select a color for this target from the color selector.
4. Click **OK** to complete these changes.

Using the DSC Directory

The DSC directory in **Tools | Options | Targets** is where you input the MMSI Number and a description (or name) of vessels polled with your DSC radio. The names you input will appear on your charts instead of the MMSI Number. These settings can be saved for future use.

Using the Tender Directory

The Tender directory is where you input the Tender ID, Description, Channel the Tender is broadcasting on and the duration for the Seetrac Base Unit to listen to that Channel. The description you input will appear on your charts. These settings can be saved for future use.

NOTE: Tender Tracker has two modes: Autonomous and Managed. Channel and Description function only in Managed Mode.

Targets NavBar and Targets InfoBar

Use the Targets Tab on the PlanView NavBar (**Figure 20.4**) or the Targets InfoBar in Admiral's NavView (**Figure 20.5**) to view additional information about a specific tracked target. Select from available Targets using the drop-down menu next to the Target name display; **Find** an available Target; **Filter** AIS Targets; and **Show All** or **Hide All** Targets in NavView.



Figure 20.4 - PlanView NavBar - Targets Tab

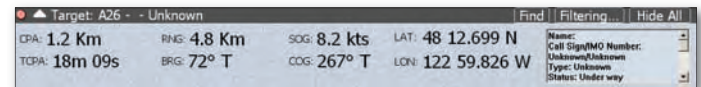


Figure 20.5 - NavView InfoBar - Targets

Locating a Target Onscreen

To locate an active Target:

1. Open the NavBar or InfoBar Targets tab.
2. Locate the active Target you are searching for from the Targets drop-down menu.
3. Click **Find** to center that Target onscreen.

NOTE: In PlanView, you can place a check-mark in the Lock check box to keep your chart centered on the selected Target.

Information Listed on the NavBar and InfoBar

- **CPA - Closest Point of Approach.** Predicted closest distance between your boat and the tracked target, based on both vessel's SOG and COG.
- **TCPA - Time to Closest Point of Approach.** Time remaining until CPA.
- **RNG - Range.** The distance between your vessel and the target.
- **BRG - Bearing.** The bearing to the target vessel.
- **COG - Course Over Ground.** The tracked target's Course Over Ground.
- **SOG - Speed Over Ground.** The tracked target's Speed Over Ground.
- **LAT - Latitude.** The Latitude of the target vessel.
- **LON - Longitude.** The Longitude of the target vessel.

AIS Target Filtering



You can filter AIS targets for type, distance, etc. When filtering is enabled, an onchart *Warning Indicator* lets you know that some or all AIS targets are currently hidden. Click **AIS Filtering** from the **Targets NavBar**, **NavView Target InfoBar** or **Tools | Options | Targets** to open the AIS Filtering window, which contains the following options:

- **Display AIS Targets.** Controls whether any AIS targets are displayed in the Chart window pane or Targets NavBar. When unchecked, all subsequent options in this window are disabled.
- **Hide Targets Beyond.** This option allows you to select a maximum distance range for detected AIS targets to display. Targets whose distance exceeds the selected setting will not display in the Chart window pane or Targets NavBar. Options are **Do not hide**, **5**, **10**, **20**, **40**, **60** or **80** units of measurement. Default is **Do not Hide**.



NOTE: The following filtering features are Admiral Only.

- **Only display targets in an AIS.TXT file.** When selected, only targets whose MMSI numbers are listed in the AIS.TXT file located in C:\Program Files\Nobeltec\Visual Series are displayed. This setting enables you to track specific, known targets while ignoring unknown targets.
- **Only display targets that are not anchored, moored or aground.** Removes any targets from display whose reported status is anchored, moored or aground. If targets whose status is anchored, moored or aground are moving at 0.2 Kts or higher, their status is ignored and they will continue to display. Default setting for this option is **Off**.

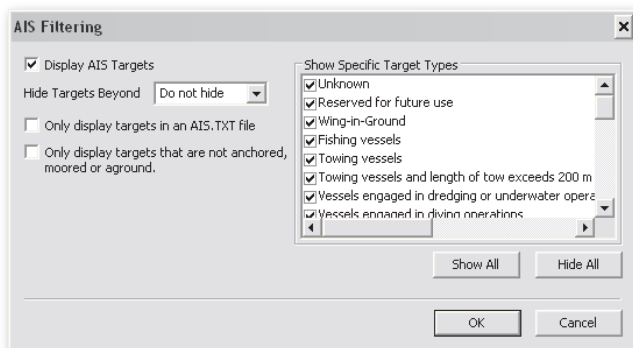


Figure 20.6 - AIS Filtering

- **Show Specific Target Types.** Select from the displayed list which Target types you wish to display in the Chart window pane or Targets NavBar. Targets whose type is not checked in this field will not display.

Changing Alarm Settings

Using **Tools | Options | Targets**, you can change the alarm settings for displayed targets. To change the alarm settings:

1. Click **Tools | Options** and then the **Targets** Tab.
2. Click **Target Threat Settings**.
3. Adjust the **CPA (Closest Point of Approach)**. This is the distance from your vessel that a target may reach before a target is deemed a threat.
4. Set the **TCPA (Time to Closest Point of Approach)**. This is the time remaining before the CPA is reached. Enter a value in seconds.
5. Click the **Audible Alarm** if desired.

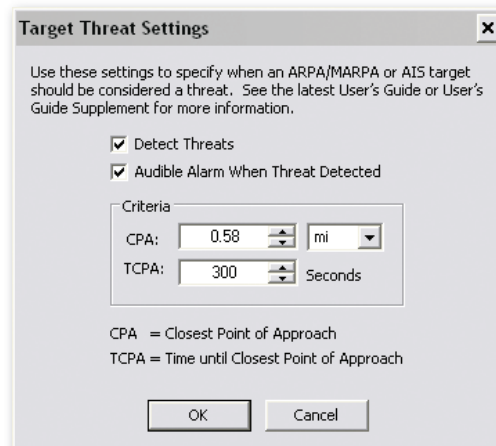


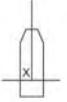






Figure 20.7 - Target Threat Settings

Nobeltec Navigation Software is designed to look for threats using a combination of CPA and TCPA as output by the GPS. For example, a vessel 1 NM away is not a threat if your threat CPA threshold is set to 0.05 NM. However, if you set threat TCPA to 3:00 minutes and the approaching vessel will be within 0.05 NM in that time window, Nobeltec Navigation Software will alert you to this threat.

Target Symbols

Symbol	Topic	Description
	Active State	Vessel appears as a triangle or diamond oriented by heading or COG if heading is missing. If heading is available, heading line will be visible as a solid line. COG appears as a dashed line. Dash and space (-) = one minute.
	Target Indicating Turn	Vessel appears as a triangle with a flag of fixed length indicating turning path.
	Active State - True Scale Outline	At high zoom, the triangle may be replaced by a true scale outline of target vessel relative to your vessel's reference position oriented along your ship's heading. The cross hair indicates the AIS antenna position.
	Active State - Target Indicating Turn	Vessel appears as a triangle with a curved dashed line indicating intended turning path. Each dash and space (-) = one minute.
	Active State - Incomplete Data	The vessel appears as a broken triangle oriented by heading or COG if heading is missing. If heading is available, heading line will be visible as a solid line.
	Active State - Past Track	Past track or path is indicated by a series of dots.
	Lost State	Flashing triangle with bold solid cross indicates that no information for the target has been received and information is not available. Triangle oriented per last known value. Cross has fixed orientation.

How Targets Appear in NNS

There are several types of targets. Their behavior dictates how they appear onscreen. It is important to recognize Target symbols and their meaning.



TIP: If symbols appear in **red**, they pose a danger to your vessel based on CPA or TCPA as configured in **Tools | Options | Targets**.

Naming Conventions for Targets

When Nobeltec Navigation Software display targets information, sometimes names are not yet associated with the target. AIS, for example, transmits a target's positional information far more frequently than it sends name, cargo and destination type info. Long names can become an onscreen display problem. When target names are too long, Nobeltec Navigation Software can abbreviate the AIS targets name to A1 or A2 (for example).

What Is AIS?

The Automatic Identification System (AIS) is an initiative mandated by the International Maritime Organization (IMO), designed to reduce collisions at sea. Self-propelled vessels that measure 65 feet or greater in length, other than passenger and fishing vessels, in commercial service and on an international voyage, are required to have an AIS transmitter onboard.

AIS received data, interfaced with Nobeltec Navigation Software, gives you the ability to add a mark onscreen for every significant ship within radio range on your radar display and overlaid electronic charts. When you double-click on these marks, each ship's velocity vector (speed and heading), ship actual size, ship name, course and speed, classification, call sign, registration number and other information will display.

Use this information to name any ship over VHF radiotelephone by name, rather than by more imprecise means such as "ship off my port bow"; dial that ship directly using GMDSS equipment; or send to (if you are equipped with a transponder) or receive from the ship short, safety-related email messages.

Types of AIS Broadcasts

Nobeltec Navigation Software recognizes the following AIS information types:

Class A

Class A AIS units broadcast the following dynamic information every 2 to 10 seconds while underway and every 3 minutes while at anchor at a power level of 12.5 watts. The information broadcast includes:

- Navigation status (as defined by the COLREGS) - Not only are "at anchor" and "under way using engine" currently defined, but "not under command" is also currently defined, among others.
- Rate of Turn - Right or left, 0 to 720 degrees per minute (input from rate-of-turn indicator when present).
- Speed Over Ground - 1/10 Kt resolution from 0 to 102 Kts.
- Longitude and Latitude - 1/10 000 minute.
- Course Over Ground - Relative to true north to 1/10th degree.
- True Heading - 0 to 359 degrees derived from gyro input.
- Time Stamp - The universal time to nearest second that this information was generated.

Class A AIS units broadcast the following static information every 6 minutes:

- MMSI Number - Vessel-specific unique identifier, links the data broadcast to the described vessel. Transmitted with every sentence.
- IMO Number - Unique identification reference (related to ship's construction).
- Radio Call sign - International call sign assigned to vessel, often used on voice radio.
- Name - Name of ship, 20 characters are provided.
- Type of Ship/Cargo - See **Table 20.1**
- Dimensions of ship - To nearest meter.
- Source - Reference point on ship from which position is calculated.
- Draught of Ship - 1/10 meter to 25.5 meters (note "air-draught" is not provided).
- Destination - 20 characters are provided (at Master's discretion)
- ETA - Estimated Time of Arrival at destination - month, day, hour and minute in UTC (at Master's discretion).

Class B

Class B is nearly identical to Class A, but broadcasts dynamic information every 3 minutes when underway at a speed of less than 2 Kts and every 30 seconds at an underway speed of greater than 2 Kts. Static information is broadcast every 6 minutes on alternating channels. Class B is only required to receive (not transmit) text safety messages and other application identifiers/binary messages.

Dynamic broadcasts include the following:

- SOG - 1/10 Kt resolution from 0 to 102 Kts.
- LAT/LON - 1/10 000 minute.
- COG - Relative to true north to 1/10th degree.
- True Heading - 0 to 359 degrees derived from gyro input.
- Time Stamp - The universal time to nearest second that this information was generated.

Static broadcasts include the following:

- MMSI Number - Vessel-specific unique identifier, links the data broadcast to the described vessel. Transmitted with every sentence.
- Radio call sign - International call sign assigned to vessel, often used on voice radio.
- Name - Name of ship, 20 characters are provided.
- Type of Ship/Cargo - See **Table 20.1**.
- Dimensions of Ship - To nearest meter.
- Source - Reference point on ship from which position is calculated.

AIS Base Station

Shore-based station provides text messages, time-synchronization, meteorological or hydrological information, navigation information or position of other vessels. Normally reports every 10 seconds. On-shore Base Stations can be rendered in the Chart window pane. Right-click on any Base Station to display the Base Station Name, MMSI Number and Lat/Lon. Base Stations can be filtered from onchart display using AIS Target Filtering.

Received Text Messages

Text-based Safety Messages broadcast from an AIS Transmitter will be displayed in the Status Messages tab of the NavBar when your system is configured to receive AIS transmissions. A Warning Indicator will appear in the Chart window pane when a text message is received.

Type of Ship/Cargo

ID	Short Label	Long Label
0-9		Not in use
10-19		Future Use
20	WIG	Wing-In-Ground Craft
21	WIG-DG-A	Wing-In-Ground Craft – Carrying DG (Dangerous Goods), HS (Harmful Substances) or MP (Marine Pollutants) (category A)
22	WIG-DG-B	Wing-In-Ground Craft – DG, HS, MP (B)
23	WIG-DG-B	Wing-In-Ground Craft – DG, HS, MP (C)
24	WIG-DG-C	Wing-In-Ground Craft – DG, HS, MP (D)
30	FISHING	Fishing
31	TOWING	Towing
32	TOW-LRG	Towing – large size
33	DREDGE	Dredging or underwater operations
34	DIVING	Engaged in diving operations
35	MILITARY	Engaged in military operations
36	SAILING	Sailing
37	PLEASURE	Pleasure Craft
40	HSC	High Speed Craft
41	HSC-DG-A	High Speed Craft – DG, HS, MP (A)
42	HSC-DG-B	High Speed Craft – DG, HS, MP (B)
43	HSC-DG-C	High Speed Craft – DG, HS, MP (C)
44	HSC-DG-D	High Speed Craft – DG, HS, MP (D)
50	PILOT	Pilot Boat
51	SAR	Search and Rescue boat
52	TUG	Tug
53	TENDER	Port Tender
54	ANTI-POLLUT	Boat with anti-pollution facilities or equipment

ID	Short Label	Long Label
55	LAW	Law Enforcement
56	LOCAL	Local Boat
57	LOCAL	Local Boat
58	MEDICAL	Medical transport
59	SHIP	Ship
60	PASSENGER	Passenger Ship
70	CARGO	Cargo Ship
71	CARGO-DG-A	Cargo Ship – DG, HS, MP (A)
72	CARGO-DG-B	Cargo Ship – DG, HS, MP (B)
73	CARGO-DG-C	Cargo Ship – DG, HS, MP (C)
74	CARGO-DG-D	Cargo Ship – DG, HS, MP (D)
80	TANKER	Tanker Ship
81	TANKER-DG-A	Tanker Ship – DG, HS, MP (A)
82	TANKER-DG-B	Tanker Ship – DG, HS, MP (B)
83	TANKER-DG-C	Tanker Ship – DG, HS, MP (C)
84	TANKER-DG-D	Tanker Ship – DG, HS, MP (D)
90	OTHER	Other type of ship
91	OTHER-DG-A	Other type of ship – DG, HS, MP (A)
92	OTHER-DG-B	Other type of ship – DG, HS, MP (B)
93	OTHER-DG-C	Other type of ship – DG, HS, MP (C)
94	OTHER-DG-D	Other type of ship – DG, HS, MP (D)

Table 20.1 - Types of Ship/Cargo Broadcast

DSC-Equipped Marine Radio Support

DSC-equipped marine radios provide vessel tracking for both DSC polling and distress calls. When you poll another boater who is also equipped with DSC technology for their position request, Nobeltec Navigation Software will display their returned information onscreen, alerting you to their location and direction.

Your DSC radio must have a DSC NMEA out port and be configured to send NMEA data to the Nobeltec Navigation Software. Once the DSC radio is installed and sending NMEA data to NNS, position reports and distress calls can be plotted onscreen.

Every vessel is assigned an MMSI Number (a unique, nine-digit identifier) for tracking using DSC. Numbers are assigned through the International Telecommunications Union. You can plot MMSI numbers polled from other vessels on your charts and save MMSI numbers for future recall. You can also associate a name with the MMSI number for easy on-chart identification.

DSC radio-received distress calls are automatically plotted on your charts. You will see a pop-up message in the Nobeltec Navigation Software when you receive a distress call over your DSC-equipped marine radio.

The DSC radio and your Nobeltec Navigation Software both require incoming GPS data in order to function. Additionally, Nobeltec Navigation Software needs to hear DSC sentences coming from the DSC radio. Occasionally, this may present challenges for installation, as most GPS units and DSC radios have a limited number of NMEA input/output connection wires exposed. Nobeltec recommends the use of a SeaLevel Serial-to-USB adapter to connect the GPS, the PC and the DSC radio.



NOTE: It is highly recommended that a trained NMEA installer perform installation of these devices to avoid wiring problems.

Once the DSC radio is installed and sending NMEA data, Nobeltec Navigation Software will detect the DSC radio and prompt for setup.

Tender Tracking

A new feature of Nobeltec Navigation Software, sold as an upgrade to Nobeltec Admiral, is the ability to track small affiliate objects, called "Tenders", such as jet skis, wave runners or even individual passengers, using the **Seetrac® Tender Tracking** interface. Tenders can be tracked using your onscreen target tracking capabilities and can greatly improve security and safety of these affiliate vessels and objects.

Unlocking Tender Tracker

Once you purchase Nobeltec Tender Tracker Plus Pack, your Jeppesen Marine product distributor will provide you with an Unlock Code. This code will unlock the Tender Tracker Plus Pack features already embedded in Nobeltec Navigation Software.

To use your Unlock Code to unlock Tender Tracker, follow the instructions on **Page 6 - Installing New Chart Permits and Unlock Codes**.

Upon installation of the Tender Tracker Unlock Code, all Tender Tracker functionality is available. However, you still need to direct Nobeltec Admiral to look for SBU output in order to recognize Tender Tracker data and display affiliate objects onscreen as secondary targets.

See **Chapter 25 - Tender Tracker Plus Pack** for full details about and setup options for the Tender Tracker upgrade package features.

21 Radar Usage

Radar Functionality

Nobeltec Navigation Software combined with radar input can greatly improve your navigation capabilities.

There are two options that allow you to interface radar technology with Nobeltec Navigation Software:

- **A Full Nobeltec InSight™ Radar 2 (IR2).** A radar specially designed by Nobeltec to send digital imagery directly to a personal computer through your computer's Ethernet port.
- or
- **A Nobeltec InSight™ Radar 2 - Black Box (IR2-BB™).** The IR2-BB is a specially designed hardware component that converts the analog output from most existing, industry-standard radars into a digital stream that can be used by Nobeltec Navigation Software. The benefit of this option is that it does not require a complete retrofit of your radar system. Connecting this device to your computer is accomplished through a standard USB port.

Both of these options are described in full in this Radar Usage chapter.

The InSight Radar 2 (IR2)

What are the Benefits of Using an IR2?

The Nobeltec IR2 is a complete radar solution that sends radar output directly to one or more personal computers in a digital format. Most radars transmit information between the transceiver and a display unit in analog form only.

NOTE: There are several IR2 models. This chapter discusses the most common usage of the IR2, with some footnotes for the 2kW Dome IR2, which varies from other IR2 models in behavior.

How Does the IR2 Work?

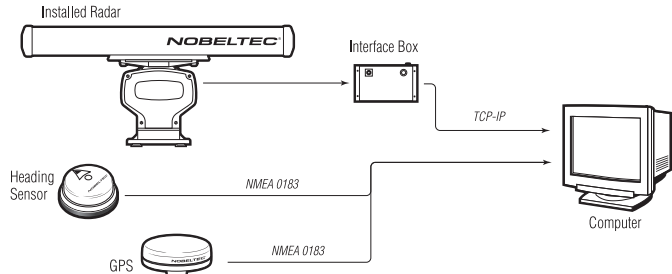


Figure 21.1 - Diagram of IR2 Setup

The IR2 Digital Radar connects to a personal computer through a standard Ethernet or network port. In most cases, it can also be connected to a network hub or router. For Network connections consult your Nobeltec IR2 Installation Guide.

Important Notice Regarding 2kW Dome Models

The Nobeltec IR2-2D20 (2kW Dome) varies slightly from other IR2 models. Although it is still a digital radar, it connects to the computer differently and does not have some of the same features as the other IR2 radars (see **Figure 21.2**). If the feature being described in this chapter is not available for the IR2-2D20, the term "4kW and Higher" will be listed next to that feature.

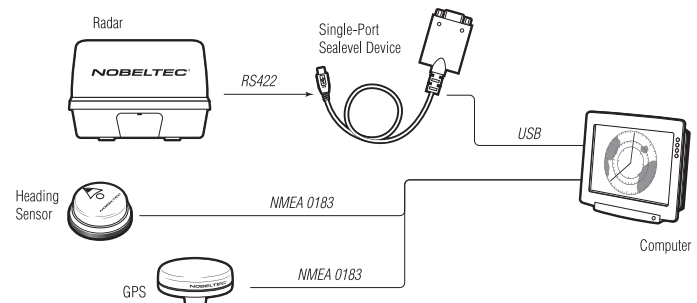
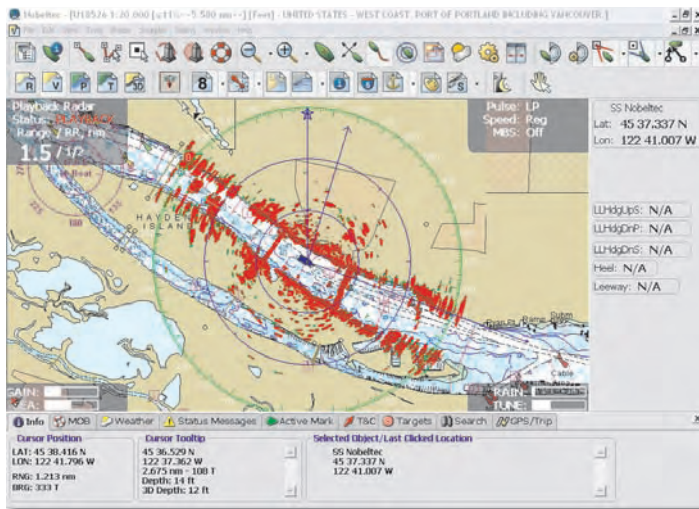


Figure 21.2 - IR2-2D20 (2kW Dome) Setup



InSight Radar
Window Pane in
PlanView

InSight Radar Window
Pane in Admiral's
NavView

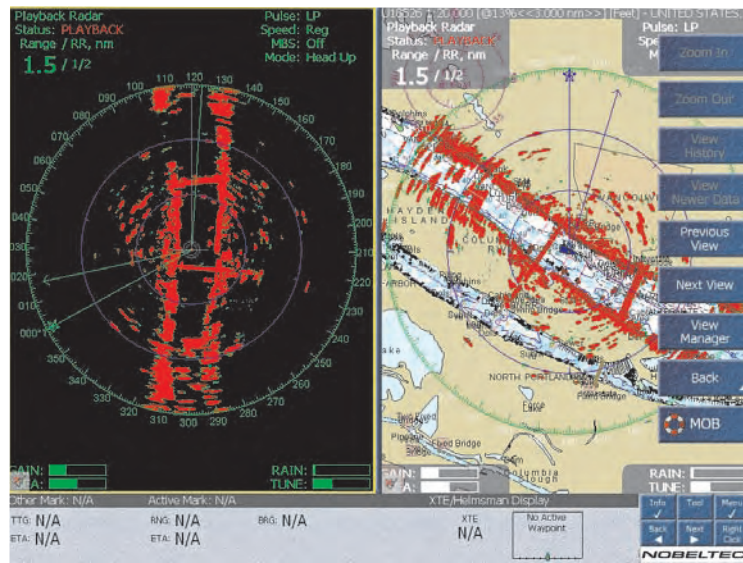


Figure 21.3 - Radar Overlay in Nobeltec Navigation Software

The InSight Radar 2 - Black Box (IR2-BB)

What is the IR2-BB?

The InSight Radar 2 - Black Box (IR2-BB) is a specially designed hardware component that converts the analog output signal from many existing radars into a digital format usable by a personal computer.

Over the past decades, little has changed with the way a radar antenna sends and receives radar microwaves. However, there have been significant advancements in the display and utility of the resulting image. Until now, boaters wanting to take advantage of these technological advancements had to replace their entire radar system even though the antenna was virtually unchanged.

With the IR2-BB and Nobeltec Navigation Software, you can avoid the cost of a complete radar retro-fit and still get the significant advantages of combining radar data with your electronic charts.

How Does the IR2-BB Work?

The IR2-BB essentially "repeats" radar data from your traditional radar display to the personal computer. Depending on your radar make and model, tuning or other adjustments may be required to get the best radar image. An advantage to using Nobeltec Navigation Software radar display is that you can continue to use your existing radar display or plotter device for redundancy, comparison and safety.



WARNING: The radar image on your plotter device may look slightly different than the image shown by Nobeltec Navigation Software.

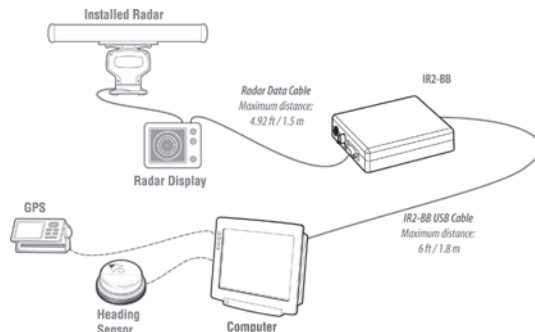


Figure 21.4 - Wiring of the IR2-BB

The InSight Radar Window Pane



The InSight Radar window pane (see Figure 21.3) is used to view radar images within Nobeltec Navigation Software. This window pane can be resized and moved in PlanView mode and laid out in various configurations using the View Manager in NavView. The InSight Radar window pane contains a broad array of radar-specific features and controls.

Opening the Radar Window Pane

1. Launch Nobeltec Navigation Software.
2. Select **Radar | Radar Display** or
 - a. Click on the **InSight Radar Window Pane** ToolBar button. If your radar unit (and IR2-BB if applicable) is turned on and properly connected to the computer, the InSight Radar window pane automatically displays a radar image similar to that in Figure 21.3.

Transmit/Standby



Once your digital radar hardware is properly installed and powered on you can view radar image onscreen by opening an InSight Radar window pane.

Click **Radar Transmit/Standby** to begin or stop radar transmission.



NOTE: Placing the radar in Standby mode does not power off the radar, but does stop the transmission of radar data. Once the radar is fully powered, Nobeltec Navigation Software automatically displays incoming radar data and provides you with a range of tuning and control options.

Radar Right-Click and Radar Menu (PlanView)

The InSight Radar window pane can be minimized, maximized and can share the screen with other window panes, such as a Chart window pane. You can close the InSight Radar window pane while the radar is still in operation. If you are overlaying the radar image on an electronic chart, the dedicated radar display is not required to be visible.

As long as your Radar (and IR2-BB, when applicable) is powered on and connected, radar data will continue to transmit, even if you are not currently viewing it onscreen. If the guard zone is enabled, alarms will still be triggered and targets will continue to be tracked by the radar, even without an onscreen display.

Ghost Cursor

When in Multiple paned window mode, one way to compare the electronic chart and the radar is to use a function called Ghost Cursor. Ghost Cursor is enabled by selecting Yes from **Tools | Options | Radar | Show Ghost Cursor**. To show the Ghost Cursor, move your cursor over the Radar or Chart window pane. A "mimic" cursor will follow the primary cursor's movements in the other window pane in the same relative position. Ghost Cursor is particularly useful when trying to understand more about certain radar targets. By hovering your cursor over the radar target in question, you can see its exact location on the chart.

Radar/Chart Overlay



Overlay Radar Image on Chart: You can overlay the Radar image directly on top of the Chart window pane, aligning the Radar with the chart until all targets are displayed on the chart in their exact location. Radar overlay helps you navigate the chart better and the chart brings context to what can often be a confusing display of radar blobs. Clicking on the radar overlay button toggles radar overlay on and off.



Figure 21.5 - Radar/Chart Overlay

When radar overlay is on, important radar information is displayed in the corners of the Chart window pane.



WARNING: Radar Overlay on your electronic charts requires a high speed and well-adjusted compass. Slight deviation errors are significantly magnified

with radar overlay. Make sure that you have setup your radar and digital compass correctly.



TIP: You can also turn Radar Overlay on by right-clicking on the chart and choosing Radar Overlay from the pop-up menu or by selecting **Radar | Radar Overlay** from the main menu.



REMEMBER: The Auto Range feature keeps chart scale and radar range synchronized, making it easier to understand the radar in context with the chart. To adjust radar range, zoom in or out using any of the chart zoom tools.

ARPA & MARPA

ARPA targets are those acquired automatically by the radar. MARPA targets are those you manually tell the radar to track. Both target types are displayed in the same way on the Chart window pane. ARPA/MARPA data from your radar can be delivered to Nobeltec Navigation Software through an NMEA data string (TTM or TLL). For users that have a Nobeltec InSight Radar (IR2) or the Nobeltec InSight Radar 2 Black Box, MARPA Targets can be acquired by right-clicking on the object in the Chart or Radar window pane and choosing **Acquire This Target** from the pop-up menu.

ARPA Radar Connection (Admiral Only)

Nobeltec Admiral has the capability to display ARPA targets detected by any industry standard external radar, using an InSight Radar 2 - Black Box (IR2-BB) to convert that analog output into digital NMEA sentences. Likewise, a Nobeltec IR2 Radar can transmit ARPA NMEA sentences directly to Admiral.

1. Connect a Heading Sensor and GPS to your computer via serial ports.
2. Connect the output cable from your IR2 radar to your PC through an Ethernet port or connect your external radar to an IR2-BB and connect the IR2-BB to your computer via an available USB port.
3. Place a check-mark in the Input Ports on the Ports check box (**Configure Tab | Options**) for the applicable COM port.

Admiral will display target data once the cables are correctly connected to the PC. Target speed and direction will also be displayed on the Chart window pane.



NOTE: Connect both a radar and a heading sensor to your PC. Without a heading sensor, any ARPA data displayed in NNS may be inaccurate.

Nobeltec Radar Overlay and MARPA

If you are using a Nobeltec Radar with Nobeltec Navigation Software, targets shown onscreen can be internally generated.

How It Works

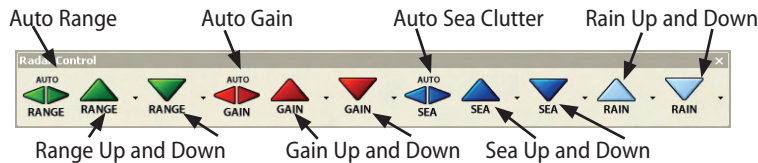
If you are using the Radar/Chart overlay feature and see a potential target on the Radar or Chart window pane, right-click the object and choose **Acquire This Target** from the pop-up menu. NNS will begin to gather information about this target and generate speed, course, CPA and TCPA information displayed on the Chart window pane in the same way as other target information.

Radar ToolBars

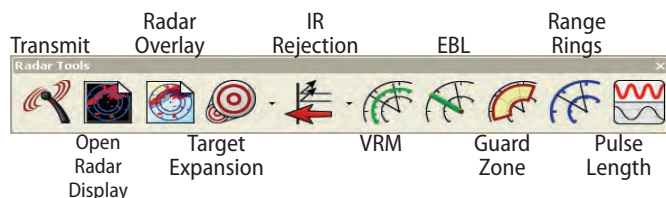
There are three primary radar ToolBars and a number of secondary ToolBars organized in smaller subsets. ToolBars may appear horizontally or vertically by default, but can be manipulated onscreen to suit your personal layout configuration requirements.

NOTE: To open non-default ToolBars, select **Tools | ToolBars** and place a check-mark next to any ToolBar you wish to see. Click **Apply** to retain changes.

The Radar Control ToolBar



Radar Tools ToolBar



Radar Advanced ToolBar (Admiral Only)

Acquire Target



Radar Rotation Speed*

NOTE: If you are using the IR2 2kW Dome model, the Advanced ToolBar is not available and will appear "grayed" out.

Initial Radar Setup

Setting the Trigger Delay

After successfully installing the radar, transmit trigger delay should be reviewed and adjusted in order to compensate for cable transmission delays. Longer cables generally require a higher trigger delay setting.

Setting the Transmit Trigger Delay: The transmit trigger delay (TxTrig) is a setting that, when configured incorrectly, can cause a donut-shaped ring to appear in the center of the radar image. Trigger delay should be initially set to reduce the size of the ring. Refinement of the Transmit Trigger is best viewed using radar overlay on the Chart window pane. In most cases, Transmit Trigger settings remain between 125 and 160.

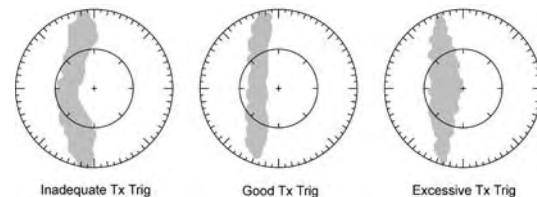


Figure 21.6 - Transmit Trigger Delay Settings - Appearance Changes

Transmit Trigger Delay can also affect the radar image of a linear object such as a breakwater or riverfront. These can appear deformed due to excessive or inadequate trigger delay. Properly setting the delay may require on-the-water tuning when looking at a straight object. Trigger delay adjustment removes deformations in the radar return as shown in **Figure 21.6**.

To adjust the Transmit Trigger Delay setting:

1. Launch Nobeltec Navigation Software and open a Radar window pane.
2. Select **Radar | Radar Initial Setup**.
3. Radar image rotation and trigger delay initial settings should be: Transmit Trigger Delay=0; Radar Heading Line Rotation=90. Adjust these settings until you achieve a stable trigger delay setting.

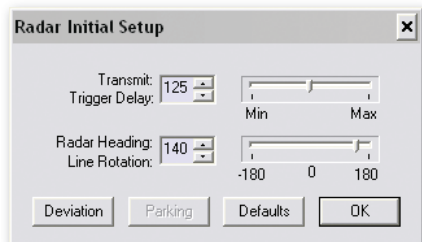


Figure 21.7 - Radar Initial Setup

Adjusting the Radar Heading Line Rotation

It is not always possible to install a radar so that the front of the radar is exactly parallel with the boat's keel or center line. The Radar Heading Line adjustment can compensate for this discrepancy.

This process allows you to align the radar transceiver with the center line of the boat and only needs to be set once. This is a different function than aligning your heading sensor, so please verify that you are adjusting the radar's physical heading line to match the center line of your boat.



REMEMBER: You must have a heading sensor connected to your computer. Without a heading sensor, Nobeltec Navigation Software cannot align the image correctly onto the chart for radar overlay. To quickly verify Heading data, add Heading Sensor data to the console by using the **Tools | Options | Console** feature.

Although you may attempt to make the Radar Heading Line Rotation alignment using visual verification, it is far more reliable to perform this function using the radar overlay feature. If charted land does not appear to line up correctly with the radar output for the same land mass, use the rotate scroll bar to adjust the rotation angle until the overlaid image aligns correctly.

To adjust Radar Heading Line Rotation:

1. Launch Nobeltec Navigation Software and open a Radar window pane.
2. Once a radar image is displaying, select **Radar | Initial Radar Setup** from the main menu to open the Radar Initial Setup window.
3. Use the **Radar Heading Line Rotation** up and down arrows or slider bar to line up the image.
4. Radar image rotation and trigger delay initial settings should be: Transmit Trigger Delay=0; Radar Heading Line Rotation=90. Adjust these settings until you achieve a stable Heading Line Rotation setting.



REMEMBER: Radar Heading Line Rotation is a one-time setup. Heading line rotation should only be offset by +/- 10 degrees maximum. Once this setting is correct, it should not require adjustment. Alignment issues while underway are typically a function of compass deviation challenges.

Compass Settings

Getting the radar to properly align with the electronic chart requires two key software settings:

Compass Master Heading Correction: In certain cases, it is not possible to install the digital compass exactly parallel with the vessel center line. This software setting allows an offset to be entered into Nobeltec Navigation Software to compensate for this occurrence.

Compass Deviation: Magnetic compasses can give incorrect readings for many reasons. The most typical is magnetic interference on the boat. The engine block, a large anchor or chain and even electronics can create magnetic interference. Nobeltec Navigation Software allows you to make entries in a deviation table that tells the software how to adjust the incoming heading data to compensate for these local deviations.



TIP: Using a Combination GPS/Heading sensor that determines heading based on dual GPS antennas (instead of magnetic influence) can significantly improve the accuracy of incoming heading data and simplify the radar alignment process.



REMEMBER: Aligning the radar with a chart is sometimes difficult. Even highly accurate charts are subject to the interpretation of navigable objects by that chart's cartographer. Radar images, however, are real-time transmissions of radar wave returns. You should expect that there may always be some level of disparity between the chart and the radar.

Adjusting the Compass Master Heading Correction



This process allows you to align the digital compass with the vessel center line. This is normally a one-time process that corrects the entire 360° radar output equally.

To align the compass

1. Open Nobeltec Navigation Software
2. Click on the **Boat Properties Tool** or Right-click on the boat and choose **Properties** from the pop-up menu
3. The Boat Properties General tab shows how compass bearings are displayed (True or Magnetic) along with the magnetic variation at the boat location.
4. Click **Deviation** to open the Compass Heading Corrections dialog.
5. Determine the amount of offset and enter it into the Compass Heading Corrections window **Master Correction** field.
6. Because the master value affects all degrees equally, make sure to enter that value before proceeding to the **Compass Deviation Table**.
7. Click **Deviation Entry** to create a Compass Deviation Table.

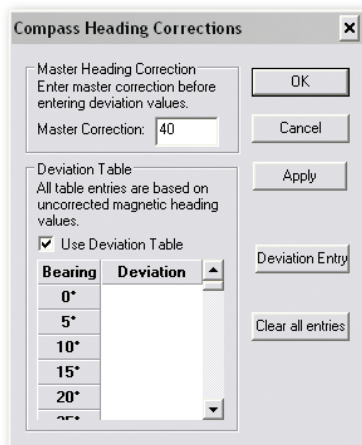


Figure 21.8 - Compass Heading Corrections

Creating a Compass Deviation Table

Magnetic compasses can provide inaccurate information due to magnetic interference. Additionally, the level of heading inaccuracy can vary at each compass heading. To resolve this, NNS contains a Compass Deviation Table that allows you to enter compass correction values at 5° increments.

Once you have resolved Compass Master Rotations, test the radar alignment at various headings to discover any onboard deviations. The easiest way to test alignment is navigate in a clear open area toward each heading for 5-10 minutes, correcting deviation using the **Compass Deviation Table** as you go.

For example:

1. Steer to magnetic North, using NNS, a radar and a heading sensor.
2. Open a Chart window pane with radar overlay and observe how the Radar overlay lines up with the chart. If the radar does not line up correctly, use the Deviation Adjustment Tool to rotate the radar image to the chart.
3. Open the **Boat Properties Menu**.
4. From the General Tab of the Boat Properties Menu, click **Deviation** to open the Compass Heading Corrections window.
5. Click **Deviation Entry** to open the **Compass Deviation Adjustment** tool.
6. Incrementally adjust the **New Deviation** settings to line up the radar and chart images.
7. Once the radar and chart images are lined up, click **Add** to add this value to the deviation table.
8. Change boat headings and repeat the process until you feel confident that the radar image lines up with the chart at each heading.

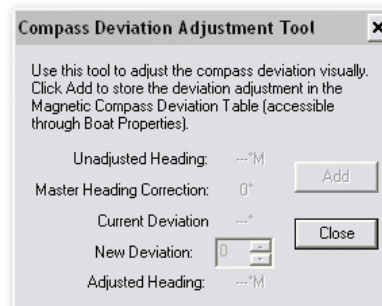


Figure 21.9 - Compass Deviation Adjustment Tool

Setting IR2 Radar Presets (4kW Models and Above Only)

The Auto Gain and Auto Sea functions allow for hands free operation of the radar. As with any other setting on the radar, these modes must be properly set up in order to operate correctly.

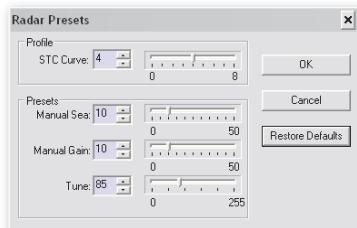


Figure 21.10 - Radar Presets

There are several presets that affect the quality of the image. This section only reviews those that affect the performance of the radar while using the "auto" functions.

The Radar Presets window is used for all preset controls (actual values may vary from those in **Figure 21.10**). Pressing **OK** applies and saves any changes you have made. Pressing **Cancel** eliminates any changes you have made and restores the settings prior to modification. **Restore Defaults** sets the values to out-of-the-box defaults.

Auto Tune

Nobeltec radars are always in "Auto Tune" mode. To optimize the image, it is necessary to set the auto tune preset. Once established, you should not need to adjust the auto tune preset unless the image quality deteriorates. Generally, you should adjust the auto tune preset on average once a year to make sure you have the highest quality image.

Follow these steps:

1. Select **Adjust Radar Presets** by right-clicking on the radar image window or select **Radar | Radar Presets** from the main menu.
2. Adjust the auto tune control down until you see the image start to deteriorate. Note the value of the setting.
3. Adjust the auto tune control up past the point where the image looks good until it starts to deteriorate. Take note of the setting value.

4. Set the controls at a point between the two extreme settings, where the quality of the image is at its best.

Auto Gain



The auto gain function automatically preserves the look of the image based on the auto gain preset. Adjust Auto Gain before adjusting the Auto Sea. Once the auto gain is set, it will be set for all ranges.

To adjust the Auto Gain preset:

1. Click **Auto Gain** to turn on the Auto Gain function.
2. Select **Adjust Radar Presets** by right-clicking on the radar image window or select **Radar | Radar Presets** from the main menu.
3. Adjust the Auto Gain control down if the image looks too strong or up if the image looks too faint.
4. Click **OK** once the image appears as intensely as you prefer.

Auto Sea Clutter



The Auto Sea function adjusts the image to dynamically compensate for changing sea state due to wind or swells. The radar evaluates the type of echoes returned and applies Sea Clutter control from the center of the image outward. If the sea state increases due to apparent wind changes, more Sea Clutter control is automatically applied to the leeward side of the image to counteract wave chop on that side of the vessel.

Auto Sea is a combination of two modes: Harbor Sea Clutter and Auto Sea Clutter control. When the range of the radar is less than 1 mile, Nobeltec Navigation Software automatically places the radar in the Harbor Sea Clutter mode; greater than 1 mile, the program switches to Auto Sea Clutter mode.

Harbor Sea Clutter is applied in situation where Auto Sea Clutter control is less optimal, such as environments where strong echoes are returned from land or nearby buildings. Unlike Auto Sea Clutter mode, Harbor Sea Clutter does not dynamically adjust the Sea Clutter, but applies a static clutter value based on the Harbor Sea Clutter preset.

Auto Sea Clutter applies to all ranges. However, Sea Clutter is applied based on the STC Curve profile, which generally has greater benefit in the areas closest to the vessel.

To adjust the Auto Sea Clutter Preset:

1. Set the radar range to **12nm** and click **Auto Sea** to turn on that function.

2. Right-click on the Radar window pane and select **Adjust Radar Presets** from the pop-up window or select **Radar | Adjust Radar Presets**.
3. Set the Auto Sea preset to **10**. Set the STC Curve preset to **4**.
4. Click **OK**.
5. Manually adjust the gain until you get secondary echoes throughout the image (make sure your radar color selection allows you discern between strong and weak echoes).
6. Re-open the Adjust Radar Presets window.
7. Adjust the Auto Sea preset value up until most of the weak echoes for an 8nm radius are eliminated.
8. Click **OK**.
9. Adjust the radar range to 1.5nm and verify that strong echoes from nearby vessels or land are not eliminated. If land or vessel echoes are small or have been eliminated, follow the previous steps to decrease the Sea Clutter preset.

To adjust the Harbor Sea Clutter Preset:

1. Set the radar range to **1nm** and click **Auto Sea** to turn on that function.
2. Right-click on the Radar window pane and select **Adjust Radar Presets** from the pop-up window or select **Radar | Adjust Radar Presets**.
3. Set the Harbor Sea preset to **10**. Set the STC Curve preset to **4**.
4. Click **OK**.
5. Manually adjust the gain until you get secondary echoes throughout the image (make sure your radar color selection allows you discern between strong and weak echoes).
6. Re-open the Adjust Radar Presets window.
7. Adjust the Harbor Sea preset value up until most of the weak echoes are eliminated.
8. Click **OK**.
9. Adjust the radar range to 1/8nm and verify that strong echoes from nearby vessels or land are not eliminated. If land or vessel echoes are small or have been eliminated, follow the previous steps to decrease the Harbor Sea Clutter preset.

STC Curve

The STC Curve function allows you to control all modes of the Sea Clutter profile of the radar. By default, the STC Curve profile is set to a value of 4. For most applications, there should be no need to change this setting. However, you may want to adjust this value to get a better application of Sea Clutter if the radar is mounted higher or lower than is typical.

To adjust the STC Curve profile:

1. Set the radar range to 12nm.
2. Set Gain and Sea Clutter to manual settings.
3. When the STC curve profile is set to a lower number, sea clutter is applied in an area close to the vessel. Setting the curve profile to a higher number causes STC to be applied to more of the image.
4. Determine the desired setting for the STC curve profile and click **OK**.



NOTE: If the STC curve profile is not set correctly, adjusting the sea clutter (manual or automatic) may not have the desired impact. If you notice that increasing the sea clutter control has no impact on the image, your STC curve profile is too low. On the other hand if you notice that echoes disappear too quickly, your STC profile may be too high.

Range (IR2 Radars only)



NOTE: The following applies only to users of an IR2 Radar. Range buttons change the zoom for IR2-BB transmissions, but not actual range.

Range buttons determine the size of the area represented in your InSight Radar window pane from IR2 transmissions. Range settings also determine the number and distance of the range rings. Click on the **Range Up** or **Range Down** buttons to increase or decrease the range of the radar. Maximum range depends upon which radar model you own.

The Range setting is shown in the upper left hand corner of the InSight Radar window pane. When you change the range, it may take 1-2 seconds to update the radar display.

Range (nm)	1/8	1/4	1/2	3/4	1	1 1/2	2	3	4	6
Ring Interval	1/16	1/8	1/8	1/4	1/4	1/2	1/2	1	1	2
No. of Rings	2	2	4	3	4	3	4	3	4	3
Range (nm)	8	12	16	24	36	48	64	72	96	
Ring Interval	2	3	4	6	9	12	16	18	24	
No. of Rings	4	4	4	4	4	4	4	4	4	

Table 21.1 - Range Scales in Nautical Miles



TIP: When the InSight Radar window pane is the active window, you can also adjust radar range by clicking the Zoom buttons or the +/- keys.

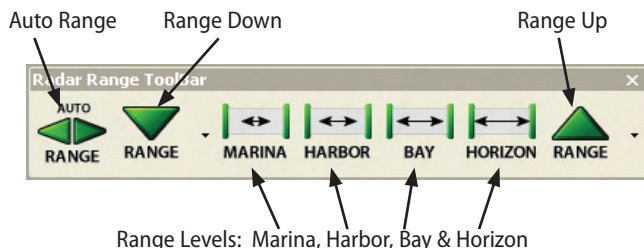
Auto Range



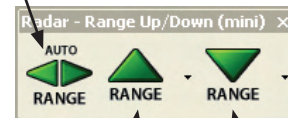
Auto Range: This feature automatically adjusts the radar range to match the Chart window pane. This keeps the overlaid radar image consistently scaled and sized with the chart. When enabled, a change in radar range or chart zoom level adjusts the corresponding range or zoom in the other window pane accordingly.

Radar Range ToolBars

There are two additional Range ToolBars designed to give you greater flexibility and control.



Auto Range



Range Up and Down

The Range Levels buttons are designed to give you the ability to range out or in to a given level with a single click. Depending on your radar type, these ranges may vary slightly.

Range Level	Approximate Range Level
	1/4 nm
	1 nm
	4 nm
	16 nm

Table 21.2 - Range Levels

Gain



Use the Gain Up and Gain Down controls to adjust the sensitivity of the radar.

A higher gain value makes the radar more sensitive to radar returns, allowing it to display weaker targets. However, if the gain is set too high, the image might get overly cluttered with background noise and even strong returns could be hidden or masked. Conversely, a lower gain could cause weak echoes to be missed.

Auto Gain (4kW and Higher)



Based on the Radar Presets, the Auto Gain function is designed for hands free operation of the radar. By setting the gain preset, the software preserves relative gain settings for every range level.

Sea Clutter (SEA)



Use the Sea Up and Sea Down keys to reduce the effect of random echo returns from waves or rough water near the vessel. Sea Clutter is sometimes referred to as STC (Slow Time Constant) or just SEA.

Reducing the on-screen clutter caused by the echoes of waves is accomplished by increasing the SEA value.

Sea Clutter shows on your radar screen as a thick cluster of radar returns. Increasing the Slow Time Constant can help filter out the echoes between rough seas and real targets.

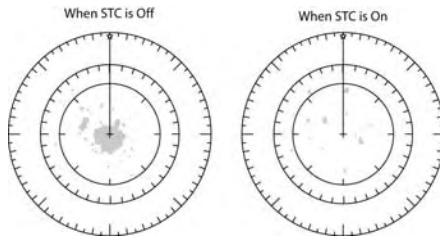


Figure 21.11 - Sea Clutter

Auto SEA (4kW and Higher)



Based on the Radar Presets, the Auto SEA function is designed for hands free operation of the radar. By setting the SEA preset (as described in the chapter titled **Setting up the InSight Radar**) the software adjusts to the changing weather conditions to maintain the radar quality. The effect of Auto SEA varies based upon range and conditions.

Rain

The vertical beam width of the radar antenna allows you to see targets on the surface even when a ship is rolling. This feature, however, can have the side effect of confusing rain, snow or other conditions with real targets. Increasing the Rain value helps to discriminate between weather and solid returns.



Use the Rain Up and Rain Down keys to reduce the effect of weather or other meteorological phenomenon on your radar image. Be careful not to increase the rain value too much as it can filter out real targets with the weather. Rain Clutter control is still effective when the Gain is lowered.

If you are using the 2kW Dome model, the Rain Up and Rain Down turn Rain Clutter on (Rain Up) and (Rain Down) off.

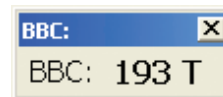
Interference Rejection (IR)



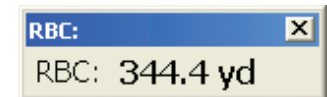
Radar Interference Rejection (IR): A setting that reduces the interference caused by radar signals from other radar units operating in the same frequency band as your radar. There are four IR options. Off, 1 (weak), 2 (middle) and 3 (strong). The higher you set IR, the less interference you will receive. In order to not miss weak targets, make sure to turn interference rejection off when no interference exists.

Range and Bearing to Target

The range and bearing to a target can be measured inside the Nobeltec application a number of ways, including using the range and bearing to the cursor as displayed in the Info tab of the NavBar at the bottom of the screen or by using the appropriate console panes as shown here.



Bearing of Boat to Cursor (BBC)



Range of Boat to Cursor (RBC)

You can also measure range and bearing to a target using the three radar tools below.

Range Rings



This button toggles the radar range rings on and off. As described above in the Range section, these rings are at preset distances from the vessel based on the radar range. The distance between rings is shown in nautical miles and is found in the upper left hand corner of the radar display directly next to the Range setting.

Radar
Range of
 $\frac{3}{4}$ nm

Status: **PLAYBACK**
Range / RR, nm
3/4 / 1/4

Range Ring
Interval of $\frac{1}{4}$
nm

To measure the range of a radar echo from the vessel, count the number of rings between the center of the display (where the vessel is) and the target. Check the range ring interval and guesstimate the distance of the target to the nearest ring.

Variable Range Marker (VRM)



A range ring or series of rings that surround the boat. VRM are normally used to measure distances to targets and center around the transmitted GPS position. Adjust VRM by grabbing one with the mouse cursor and dragging it to the desired radius. VRM range is displayed in the lower left hand corner of the InSight Radar window pane.

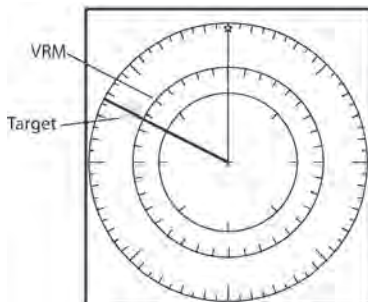


Figure 21.12 - Variable Range Marker

Variable
Range
Marker
distance
from
vessel

VRM
0.16 nm
GAIN:
SEA:

Gain and
Sea Clutter
Indicators

Electronic Bearing Line (EBL)



A bearing line or pair of lines that originate from the center of the boat and remain constant as the boat moves. Use the EBL to measure the bearing from the boat's position to a target. EBL are based on transmitted GPS position and are displayed relative to the boat heading. To adjust an EBL, click and drag it to the desired angle. The angle displays in degrees and is found in the lower right corner of the radar display.

EBL
03:00 clk
RAIN:
TUNE:

EBL in Clock degrees

EBL
90.0° R
RAIN:
TUNE:

Relative degrees

EBL
040° T
RAIN:
TUNE:

Absolute degrees

Guard Zones



One of the powerful InSight features is the ability to create fully customizable guard zones. This zone acts as a shield to the vessel. If the InSight Radar receives radar returns inside the guard zone, you will be notified with an alarm. Once a guard zone is created, you can click on any of the outer edges to change the size and shape of the guard zone in that direction. Click in the center to move the whole guard zone around the vessel. When radar echoes enter the guard zone, you are notified in the Status tab of the NavBar as seen here.



Figure 21.13 - Radar Echoes shown in Status Tab of NavBar



WARNING: Neither guard zones nor any other part of the InSight Radar should be relied upon as the sole means for detecting collision possibilities. To improve the function of the guard zone, make sure your radar is properly adjusted to see targets inside the guard zone.

Pulse Length (4kW and Higher)



Pulse Length is the length of time of each transmission of radar waves by the transceiver. Typically a longer pulse length produces better long range target detection and a shorter pulse length is for better target range discrimination. The pulse length is shown in the upper

right corner of the InSight Radar window pane. The pulse lengths are pre-set for each range so you are not typically required to change this setting. However, if you are not satisfied with the current pulse length setting, it is possible to toggle between the pulse lengths with this ToolBar button.

Pulse length
and Rotation
Speed

Pulse: SP
Speed: Reg
Mode: Heads Up
Freq: X-Band

Orientation
and
Frequency

Radar Orientation (rotation) (4kW and Higher)



TIP: Radar orientation and rotation settings require your computer to be receiving Heading Sensor data from your Heading Sensor.

You can rotate the InSight Radar window pane by using the Radar drop down menu or the right-click. In both cases, click on the option Radar Orientation and then on one of its sub-menu options. The current orientation is displayed in the upper right corner. Orientation options are:

Head Up: Rotates the radar image such that the line connecting the center of the radar image to the top of the display is the vessel's current heading. The radar is painted relative to your ship's heading.

North Up: Rotates the radar image so that North is always directly at the top of the radar display. In this case, the line connecting the center of the radar image to the top of the display is the North indicator.

Course Up: This option rotates the radar image to the current Course Over Ground (COG). As your course changes, so does the radar display. COG is necessarily different than Heading in that your boat can be pitching and rolling creating sudden heading changes while COG remains consistent. Heading is typically delivered via a heading sensor while COG is a function of your GPS and track history.

Leg Up: This option rotates the radar image to the intended course between your start point (or last waypoint) and the next waypoint in your route. Leg Up is useful when your ship is yawing excessively and the radar image is changing too much. This option only works when you have a activated route in a chart window.



NOTE: When using the 2kW Dome, the only Radar Orientation available is

Head Up. If the radar image is overlaid on an electronic chart, you can select any of the orientation modes listed above.

Off-Centering the Radar (Shifting) (4kW and Higher)

Your ship's position onscreen can be off-centered to provide greater radar range. You can control the positioning of the radar image inside the radar display in one of three ways:

Click and Drag: With your mouse, click and drag on the vessel icon to re-center the image wherever desired.



AutoScroll: Look Ahead: Clicking on this button does two things. First, it orients the radar image to Heads Up and then centers the radar image at the bottom of the radar display. This gives you the maximum view ahead.



Center on Boat: This button re-centers the radar image and performs the same command in a chart window.

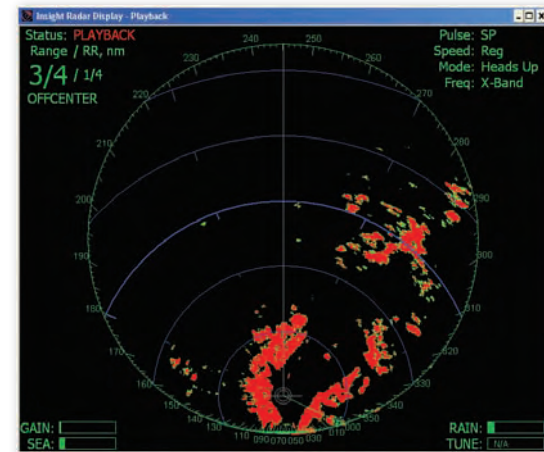


Figure 21.14 - Radar Look Ahead Mode

Radar image is off centered to the Look Ahead position. Notice that the heading line extends up on the image and the North indicator extends to the lower right side.

Recording the Radar

Record/Playback Control: Nobeltec Navigation Software can record radar images from your voyage and play them back at a later time. Clicking on this button launches a dialog that looks like a VCR control:



Figure 21.15 - Radar Record/Playback

Play: This button launches a dialog where you can browse to pre-recorded radar files. Radar files are saved with a ".rad", ".ras" or ".rec" extension. Once located, the radar display plays the recordings back at real-time speeds.

NOTE: Not all radars support the Record/Playback functions.

Rewind: This rewinds the radar file that you are currently viewing.

Pause: Pauses the radar file that you are currently viewing.

Record: Begins recording radar data in real-time. When you click on this button, you will be prompted to designate the file name and location to store the radar recording on your hard drive or server.

Stop: Stops radar file playback.

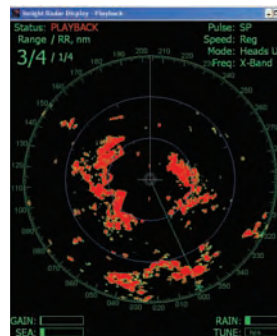
Loop: Replays the selected radar playback file until you click Stop.



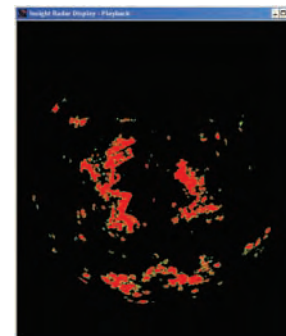
WARNING: Recording radar files consumes large amounts of hard drive space in short periods. You may want to delete radar files or back them up once they are no longer needed.

Decluttering the Radar

Declutter Hot Key: In the InSight Radar window pane or a chart window with Radar Overlay, press and hold down the space bar to clear the windows of any radar objects other than the radar return itself. This gives you a radar image free of all objects, including the range rings, the Variable Range Marker, etc. When finished, let up on the space bar and your radar image will return to normal.



Standard InSight Radar

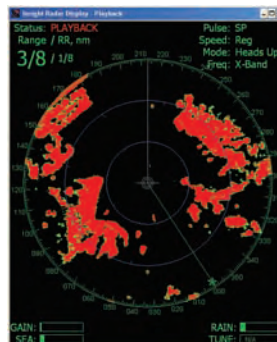


With Decluttering

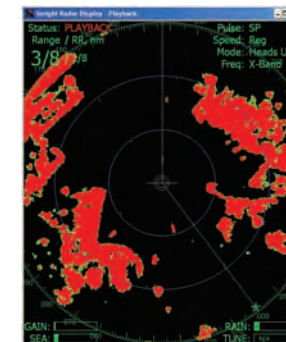
Figure 21.16 - Decluttering Comparison

Resizing the Radar Image

The InSight Radar window pane can be resized like any standard Window. In addition, the size of the radar image can be adjusted to fit the window pane or maximized so that the radar takes up more of the window space. Right-click on the Radar window pane and choose either **Fit** or **Clip**.



Fit Mode



Clip Mode

Figure 21.17 - Fit or Clip Comparison

Using Radar in Admiral - Advanced Features

Nobeltec's Admiral product is designed specifically for the nautical market and is laid out onscreen in a look and feel called "NavView". Although it is designed for low-light and other navigation-specific conditions, NavView can also function using touchscreen monitors. Buttons and menu entries are oversized and easy-to-read. While Admiral's NavView has all of the commonly used features for navigation, it does not have some of the planning features used in PlanView.

NavView's Multiple Monitor Support

One of the features of NavView is the ability to have a single computer drive more than one monitor. This is particularly useful when using integrated devices such as the InSight Radar. Hooking up multiple monitors allows you to show the InSight Radar on one screen as a dedicated radar while the other monitor(s) show other navigation data.



Figure 21.18 - Multiple Monitor Example

A primary benefit of NavView is its use of screen real-estate. By eliminating the Windows ToolBars and other functions, your PC looks and operates more like a device-specific monitor than a PC.

Full Screen Radar Console

When the InSight Radar is being displayed as a full screen in NavView, a special Radar Console provides detailed navigation and radar information on either the right or left side of the screen (Figure 21.19).

The reported values in the Radar Console are affected by the settings in the Radar tab of the program Options. Changing the side of the Radar Console from left to right or turning it off altogether is also accomplished through the program Options.

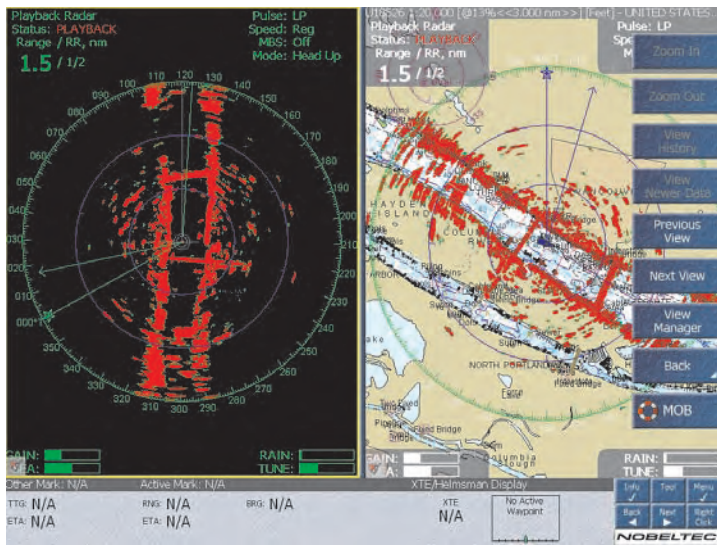
SS Nobeltec: SPD: 2.8 kts HDG: 276° T L/L: 48 25.449 N 123 22.911 W	← The Vessel Vessel name Speed Heading Position
Cursor: R BRG: 07:10 clk RNG: 0.7 km L/L: 48 25.209 N 123 22.509 W	← The Cursor Bearing Range Position
Target: TYPE: MARPA NAME: MR1 RNG: 0.4 km BRG: 302 T CSE: 266 T SPD: 3.4 kts CPA: 0.295 km TCPA: 00:02:12	← Selected Target Type (ARPA, MARPA) Name Range and Bearing Course Speed CPA and TCPA
Settings: GAIN: <input type="text"/> RAIN: <input type="checkbox"/> SEA: <input type="checkbox"/> TUNE: <input type="text" value="N/A"/> IR: Off EXP TGT: Off	← Radar Settings Gain Rain Sea Clutter Tune IR rejection Expand Targets

Figure 21.19 - Full Screen Radar Console

NavView ToolBars

Radar ToolBars in NavView are similar to the ToolBars in the PlanView. However, Admiral provides some additional features. Each button on the NavView ToolBars function identically to the corresponding PlanView button.

If you are using the 2kW Dome model, please note that the Auto Sea, Auto Gain, Double Speed and Pulse Length tools are not available and the ToolBar buttons for those tools will be "grayed" out when you use that specific model.



Split Screen InSight
Radar Window Pane
with Chart Overlay
in NavView.

Full Screen InSight
Radar in NavView
with the Radar
Console on the
Left side.

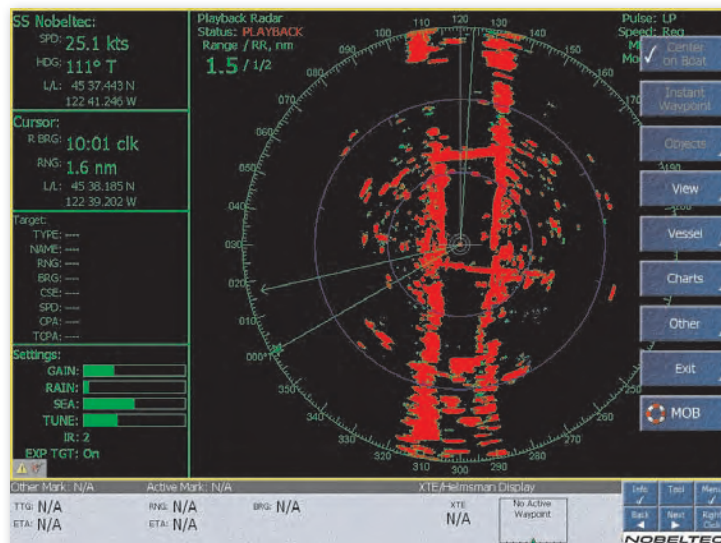


Figure 21.20 - Radar Onscreen



The Radar Controls ToolBar in NavView controls the radar in the same way as the ToolBar of the same name in PlanView.



The Radar Tools ToolBar in NavView has a few extra radar tools that are used for Admiral features only.

In addition to the main NavView ToolBars, Admiral has two additional ToolBar buttons:



Double Speed (4kW and Higher): When connected to a 24 volt power source, the IR2 can operate at twice its normal antenna rotation speed. Double speed is useful for high-speed vessels or when operating in tight navigation waterways. By operating at double speed the radar is refreshed at twice normal speed.



Acquire Targets Mode: This button puts your cursor into the acquire targets mode for manually identifying radar targets. This is discussed in greater detail below.

Target Tracking

The Admiral product has a built-in comprehensive target tracking system. Targets can be acquired one of three ways:

AIS: Automatic Identification System is a system where vessels can broadcast position, course, speed, rate of turn and other useful information. It can be used to educate local traffic about the traffic conditions. Vessels of a certain size are required to broadcast the AIS signals, but anyone can listen. If your vessel is equipped with an AIS receiver or transceiver, Nobeltec Admiral picks up the incoming information and paints the targets on the chart.

External Radar: Many external radars can acquire targets using either ARPA or MARPA. Most of these radars can also broadcast this data to Nobeltec using the NMEA standard sentences. When properly connected, Admiral paints these targets from external radars.

Point and Click (MARPA): Nobeltec Admiral can be used to easily acquire and track radar targets. Using the power of the PC and the mouse cursor, identifying and tracking targets is easier than ever.

Point and Click Radar (MARPA)

MARPA is an acronym for Mini Automated Radar Plotting Aid. Its primary purpose is for collision avoidance and target tracking.



WARNING: No single navigational aid should be relied upon for the safety of vessel and crew. The captain has the responsibility to use all navigation aids to verify position. Electronic navigation aids are not a substitute for basic navigational principles and common sense.

Properly tuning and adjusting your radar in changing conditions is critical for target tracking. MARPA target tracking requires accurate heading data. A poorly performing heading sensor makes target tracking impossible. For best performance, use a high speed GPS gyro compass and GPS.

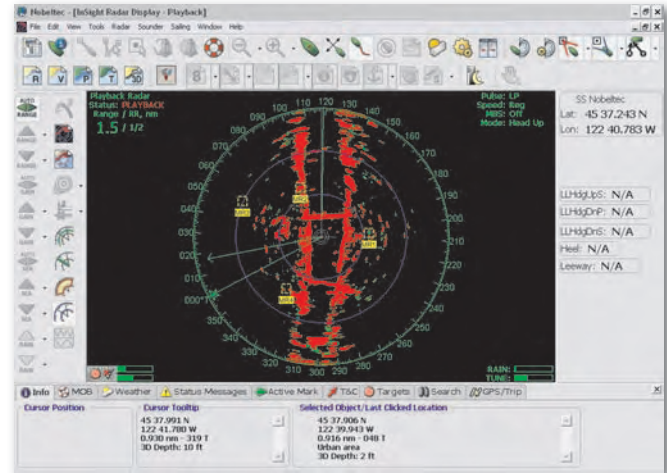


Figure 21.21 - MARPA Targets in Point and Click Radar



REMEMBER: MARPA requires a well adjusted and properly setup digital compass. If using a magnetic compass, you will have to setup a deviation table to adjust the compass input for magnetic interferences on your boat.

Acquiring MARPA Targets

Acquiring MARPA targets in Nobeltec is simple. The first step is to identify the target that you wish to track.

There are three ways to acquire MARPA targets using Nobeltec Navigation Software's exclusive Point and Click Radar:

Double Click. In the InSight Radar window pane, simply move your mouse on top of the radar target that you wish to track and double click.

Right-click. In the InSight Radar window pane, move your mouse on top of a radar target, right-click and select the option: **Acquire this target.**

Acquire Mode. The Acquire mode changes the cursor to a dashed box. When in this mode, every left click, in the InSight Radar window pane and a chart window that has Radar Overlay, tells Nobeltec to track the radar object at the location you clicked.

Once you've identified a target, the Nobeltec Navigation Software will process radar data for a few revolutions before displaying the tracked target.

MARPA Symbology

Nobeltec uses the IMO approved MARPA symbology.






Symbol	Description	Meaning
	Dashed box	Attempting to acquire target. Typically takes up to 7 full rotations.
	Green Circle with Vector	Tracking target. Vector shows course and speed.
	Red Triangle with Vector (flashes red and yellow)	Target is a threat because it is inside the alarm setting. Showing course and speed through the vector.
	Yellow Diamond	Lost target. Attempting to re-acquire.
	Downward-pointing Triangle	Target is within Guard Zone.

Table 21.3 - MARPA Symbols

The predictor line extending from the target symbol gives an estimate of target course and speed. The end of the predictor line shows the position where, barring changes, the target will be in a designated amount of time.



TIP: If the MARPA target is lost, another feature of the Point and Click Radar is to use your mouse to drag the symbol back over the radar echo to help it re-acquire. You can also delete targets with the right-click. When a target is lost, color flashes between red and purple.

Once a target has been acquired you can see it in the Radar Console as we saw earlier in the chapter or on the Targets tab of the NavBar as shown here.

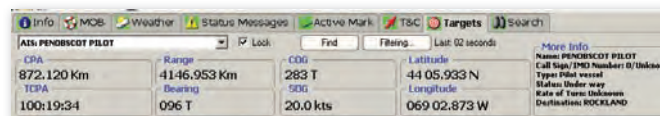


Figure 21.22 - Target Acquired shown in Targets Tab of NavBar

The Targets tab of the NavBar shows all the targets that are being tracked, including AIS targets. Use the drop down box in its upper left corner to choose the target that you wish to view. The More Info section is used to display the extra information from AIS targets.

Setting a Target Alarm

The alarm settings are set based on the target's CPA and/or TCPA. By default the alarm settings are set to:

CPA: ½ nm

TCPA: 300 seconds.

When a predicted CPA of any target becomes smaller than the CPA alarm or its predicted TCPA less than the TCPA alarm limit, an audio alarm sounds and the target displays as a red triangle with a red vector.



To change the alarm settings go to the program options by clicking on the Options ToolBar button or through the menu system by clicking on the **Tools** drop down menu and then on **Options**. Now click on the Targets tab and change the Target Threat Criteria as desired. For more information on the Options, see the section later in this chapter.



WARNING: The CPA/TCPA alarm should never be relied upon as the sole means for detecting the risk of collision. The navigator is responsible for using all means of threat detection, including visual observations.

Target Tracking Terms and Acronyms

Acronym	Full Name	Meaning
CPA	Closest Point of Approach	CPA is the closest distance that will be achieved between your vessel and the tracked target based on your collective speed and direction.
TCPA	Time to Closest Point of Approach	The time it takes to reach the CPA. Time is expressed in minutes.
Rng	Target Range	The tracked target's range from your vessel.
Brg	Target Bearing	The bearing of the target in True or Magnetic.
CSE	Target Course	The tracked target's course.
SPD	Target Speed	The tracked target's speed.

Table 21.4 - Acronyms

Radar Configuration Options

Tools | Options | Targets

If you have compatible ARPA/MARPA radar(s) or AIS device(s) connected to your PC via an NMEA connection, any target detected by these devices can be displayed on your Passport vector charts with their pertinent information. Additionally, if a DSC radio is connected to your PC, you can track other vessels similarly equipped.

Display ARPA Targets: "Yes" displays ARPA targets coming from an external radar in standard NMEA format.

ARPA Targets based on magnetic: "Yes" recognizes an external ARPA source as magnetic bearing data rather than true bearing data.

Display DSC Targets. DSC-equipped marine radios provide vessel tracking for both DSC polling and distress calls. When you poll another boater who is also equipped with DSC technology for their position, Nobeltec Navigation Software will display their returned position information on the navigation

chart, alerting you to their location. "Yes" displays DSC targets and "No" disables.

Target Name Settings: Determines how the software will display AIS target names when overlaid on the chart. Options are None, Short or Full.

Display targets on radar display. "Yes" displays targets, "No" disables.

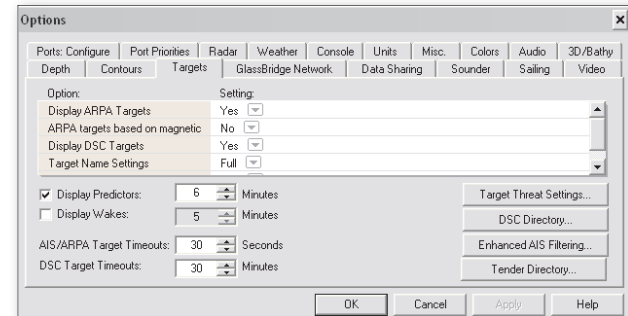


Figure 21.23 - Tools | Options - Targets Tab

Target Threat Criteria: Check the **Detect Threats** box to enable threat criteria. Once checked, set the CPA and TCPA limits. You can also turn the audible alarm on/off.

Display Predictors. When selected, this option will display a course predictor line in minutes for all detected targets.

Display Wakes. Similar to a predictor line, the Display Wakes option allows you to see a historical track of where the target has been.

AIS/ARPA Target Timeouts: ARPA targets normally transmit reports every few seconds. Select how long an ARPA or AIS target will remain on your screen between reports. If the software does not receive a report during this set amount of time, it will be removed from the display.

DSC Target Timeouts. DSC targets only transmit data when requested by another DSC-equipped marine radio. Select how long a DSC target will remain on your screen between reports. If the software does not receive a report during this set amount of time, that target will be removed from display.

Target Threat Settings. Use this button to detect potential threats based on information received from ARPA, MARPA and AIS targets. If a target meets

criteria for this setting, the target will render in **red** and a warning message will be shown.

- **Detect Threats.** Check this box to look for threats, as determined by your CPA and TCPA settings. When there is no check-mark in this check box, the Alarm, CPA and TCPA options are disabled.
- **Audible Alarm When Threat Detected.** Check this box to receive an audible alarm when CPA or TCPA meet safety zone criteria.
- **Closest Point of Approach (CPA)** - Used to determine the safety zone area around your vessel - default is 0.5 NM. If a target enters into the area specified by this setting, it is considered a threat.
- **Time to Closest Point of Approach (TCPA)** - Sets a threshold amount of time until the Closest Point of Approach.

DSC Directory. The DSC directory is where you can input the MMSI Number and a description (or name) of vessels polled with your DSC radio. The description you input will appear on your charts instead of the MMSI Number. These settings can be saved for future use.

AIS Target Filtering. AIS targets can be filtered for type, distance, moorage state, etc. The **Targets NavBar**, **NavView Target ToolBar** and **Tools | Options | Targets** all contain a link to open the AIS Filtering window.

- **Display AIS Targets.** Controls whether any AIS targets are displayed in the Chart window pane or Targets NavBar. When unchecked, all subsequent options in this window are disabled.
- **Hide Targets Beyond.** This option allows you to select a maximum distance range for detected AIS targets to display. Targets whose distance exceeds the selected setting will not display in the Chart window pane or Targets NavBar. Options are **Do not hide**, **5**, **10**, **20**, **40**, **60** or **80** units of measurement. Default is **Do not Hide**.
- **Only display targets in an AIS.TXT file.** When selected, only targets whose MMSI numbers are listed in the AIS.TXT file located in C:\Program Files\Nobeltec\Visual Series are displayed. This setting enables you to track specific, known targets while ignoring unknown targets.
- **Only display targets that are not anchored, moored or aground.** Removes any targets from display whose reported status is anchored, moored or aground. Default setting for this option is **Off**.
- **Show Specific Target Types.** Select from the displayed list which Target types you wish to display in the Chart window pane or Targets NavBar. Targets whose type is not checked in this field will not display.

Tender Tracker. The Tender Directory manages all tenders (wave runners, jet skis, etc.) that are transmitting data to Nobeltec Navigation Software via the data connection. The Tender Directory will display the Tender ID, Tender description, channel and duration of the tender signal. Up to 99 Tenders may be tracked at a given time.

- **Managed Mode.** Place a check-mark in this check box to configure channel and duration settings.



NOTE: Tender Tracker has two modes: Autonomous and Managed. Channel and Duration only function in Managed Mode.

- **Tender ID.** Input the numeric value for the Tender you wish to track.
- **Description.** Input a description of the Tender tracked on this channel. The description you input will appear on your charts if you select to display Target Names.
- **Channel (Managed Mode only).** Select the channel this Tender is using to transmit data (1-17). Default is Channel 1.
- **Duration (Managed Mode only).** Select a duration for this Tender's signal from the drop-down menu (0-30). Default is 5 seconds.

Tools | Options | Radar

Tools | Options | Radar provides you with per-Radar (or radars, for Admiral users) settings options.

Use the Radar Selection field in the upper left-hand corner to highlight the name of the Radar you wish to configure, then use the option settings configure each Radar. Radar settings include:

Auto Range Links With: Auto Range keeps the InSight Radar window pane and chart window synchronized. As you zoom in or out on one of the display windows, the other matches the changes in range.

All Chart Windows: This option keeps all chart windows zoomed at the same range level.

Chart w/ Radar Overlay Only: Changes the zoom or scale only of chart windows that have the radar overlay turned on, matching the radar range.

Keep Range Setting: When checked, this feature remembers the tuning settings for Gain, Sea Clutter, etc. for each range. As you adjust the range, the InSight radar will revert to your last used tuning settings.

Suppress Echoes Around Boat: Resolves what is commonly referred to as Main Bang Suppression. This feature turns off all radar echoes around the boat within a certain radius of pixels.



WARNING: Use caution when using this feature as it could remove real radar echoes that could be collision threats.

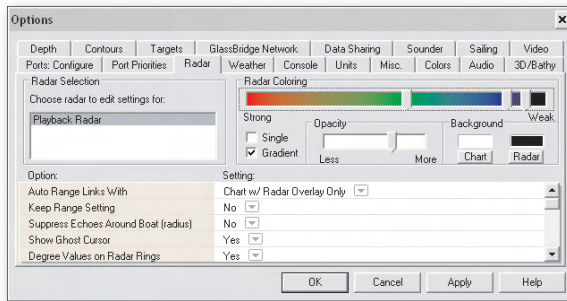


Figure 21.24 - Tools | Options - Radar Tab

Ghost Mouse Cursor: Shows a ghosted image of the mouse cursor in every chart window. Most typically this would be used when the radar display and a chart window are not in the same rotation angle so identifying targets is made simpler.

Degree Marks on Radar Rings: Turns on or off the degree values from the radar range rings.

Vessel Centric Bearings: This option lets you change how the angle of the Electronic Bearing Line is measured and displayed. The value set here is used in the InSight Radar window pane.

Radar Text Banner: This option changes how the radar information is displayed when overlaid on an electronic chart. There are three options, Boxed, Full and None. This option does not affect the display of the text itself only the background box.

Radar Resolution (not on all radars): This option is only available if you have certain versions of the Nobeltec digital radar. Further, the options included are based upon which Nobeltec digital radar you own. Click the down arrow to see what options are available for your radar model. While higher resolution provides an improved radar image, it generally consumes more memory.

Image Clipping: Some radars return the radar image in a square shape. This setting allows you to keep the radar image square or clip the corners to see a more standard circular radar image.

Always Open Radar Display: "Yes" selects whether or not to open a radar display by default each time the program launches.

Full Screen NavView Radar Console (Admiral only): In NavView, when the InSight radar is full screen, the Radar Console appears. This option determines where to place the console.: Left, Right or None.

Colors: The InSight radar allows you to change the colors of display elements to make objects more visible in different lighting situations or for viewing preference. To adjust your color settings, use the slider tabs to adjust the size of the color section. Once the slider tabs are in place, you can right-click in any color section to open the Color Selection dialog box and set your desired color settings.

Understanding Radar

The capability of a radar varies depending on where the radar is mounted, the radar's performance, weather conditions and the skill of the operator.

How to Interpret the Radar Picture

To interpret the radar picture, an operator should be familiar with the radar video presentation caused by the wanted and unwanted effects. For instance, radar images produced by bridges, sand beaches, waves and even a boat's wake may all be represented differently than expected based on their visual appearance.

For correct interpretation of the radar picture, it is highly recommended that the operator practice using the radar in good weather conditions.

Normal Echoes

Figure 21.25 shows an example of a typical radar picture compared against a sample real-world scenario. There are a number of things to learn from this image regarding how a radar works. Here is a list of some important ones:

1. Buoy #1 is being blocked by the cape or hill and is not visible in the radar display.

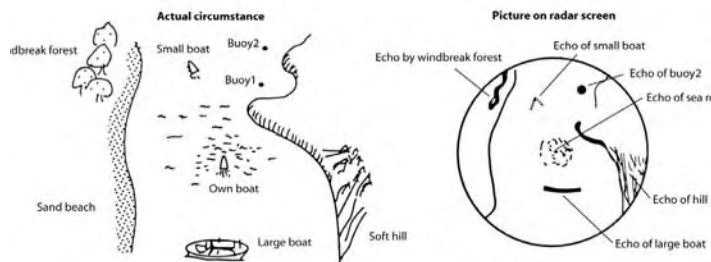


Figure 21.25 - Typical Radar Picture

- Due to its proximity and size, the large boat returns a strong radar return that is similar to its actual profile. On the other hand, the small boat is painted as a small dot, because its reflection area is smaller. Also notice that the smaller boat's wake returns a large reflection.
- The hill on the starboard side of the vessel, because of its dense forest and hilly nature, returns large echoes, while the sandy beach to the port returns a weak radar image. The exception to the port side return is the windbreak forest which returns strong echoes because of its profile differences.

False Echoes

False echoes may appear according to surrounding circumstances. Examples of false echoes and causes of these echoes are described below.

False echoes caused by reflection

A close target may appear in two different directions. One is a real echo, while the other is a false one produced by reflected waves from structures near the radar antenna, such as a funnel, a mast, etc. If a large structure, like an iron bridge exists nearby, it can also create false echoes.

False echoes caused by multiple reflection

When your boat passes near a large boat, radio waves are repeatedly reflected between the two, causing several echoes at regular distances to appear in the same bearing. These false echoes produced by multiple reflection are called multiple echoes. In this case, the real target is the closest. Because multiple echoes soon disappear when your boat moves from the reflection target or the boat direction has changed, even if these multiple echoes are produced, the true image is easily detected.

Shadow and dead angle

If the funnel, mast, post and other structure are located near a transceiver or if a tall obstacle is present, a shadow is produced from the rear of these structures. In extreme cases, no targets will appear in the shadow for a good distance. This range is called the dead range and the shadow can be produced entirely or partially. Since the dead angle due to the funnel, mast, etc. is detectable during the installation of the transceiver, it can be eliminated by changing the radar mounting position.

False Echoes Caused by Side Lobes

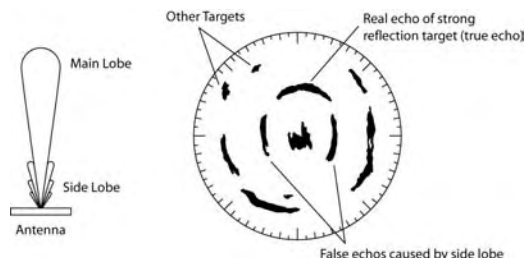


Figure 21.26 - False Echoes Caused by Side Lobes

The radiation beams emitted from the transceiver comprise side lobes in addition to the main lobe. Since the side lobe energy is very low, it does not affect distant targets. A false echo due to the side lobes is produced from a close-in target with strong reflections. A false echo caused by the side lobes appears as an arc. It is eliminated by slightly reducing the gain or by changing the FTC level.

Radar Horizon

Because light is generally refracted downward, we are able to see a slightly farther distance than the actual, physical horizon. This expanded perception is called the optical horizon, which is approximately 9% farther away than the physical horizon.

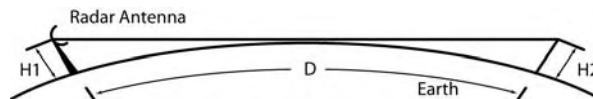


Figure 21.27 - Radar Horizon

The radio waves used for radar are called microwaves and like light, they travel in straight lines. Microwaves have similar characteristics to light and images produced by microwaves on your radar screen are called the radar horizon. Since microwaves are longer than light in terms of wavelength, the radar horizon is farther away than the optical horizon by about 6% and from the physical horizon by about 15%. The radar horizon changes according to your radar transceiver height and target height.

Radar Horizon and Natural Anomalies

As temperature and humidity change in the air, the refractive index of radar radio waves change, consequently causing the detectable range of the radar to vary. This gives us a variation of detectable range due to a change in ambient conditions.

Sub-refraction

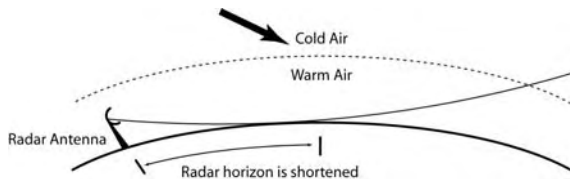


Figure 21.28 - Sub-Refraction

When cold air flows over the warm surface, the radar waves are curved upwards. This phenomenon is called sub-refraction. As a result, the detectable range of the radar is reduced. This occurs in polar regions or in warm currents where cold air from the polar regions flow into the sea.

Super-refraction

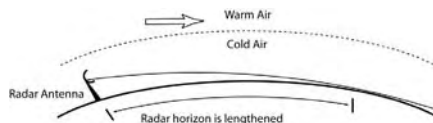


Figure 21.29 - Super-Refraction

When the air being warmed up inland flows in the cold sea, radio waves are curved downward. This is called super-refraction. In this case, the range of the radar increases. This phenomenon is produced in the warm coastal regions and becomes noticeable as the temperature difference becomes larger.

Ducting

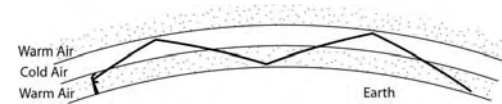


Figure 21.30 - Ducting

If air layers having a different temperature or different atmospheric pressures are produced alternately in the altitudes, a distant target exceeding the visible range of the radar is detectable. This phenomenon is caused when air layers having a different temperature contact each other. The radio waves are not refracted, but reflected on the boundary where the two layers differ. As a result, radio waves can be propagated farther than the curvature of the earth. The passage where the radio waves travel is called a Duct. The abnormal propagation of radio waves through this duct is called ducting.

Minimum Detectable Range

The minimum distance at which the radar can detect a target is called the **Minimum Detectable Range**. This minimum range varies depending on radar factors such as transmission pulse width, RF leakage time and height of the transceiver.

Height of Transceiver

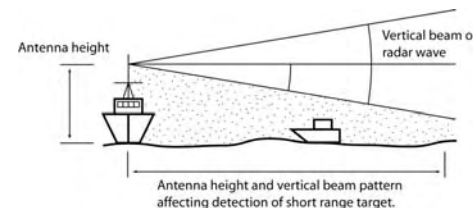


Figure 21.31 - Height of Your Transceiver

The height of your transceiver affects the short range target detection. If the transceiver is mounted at a relatively high level from the sea surface, the radar wave may skip closer targets causing the radar to fail in detection of these closer targets. The radar's Vertical Beam Width is also involved, as shown in the figure above. A wider beam results in better short range detection, however, it also shortens the detectable range.

Transmission Pulse Width

In most radar systems, including the Nobeltec Digital Radar, the radar transmission pulse width is automatically selected to short or long depending on the range scale. At a short range, a short pulse width is used to improve the close target detection as well as picture definition. At long ranges, a longer pulse width is used to achieve good long range performance.

Range Resolution

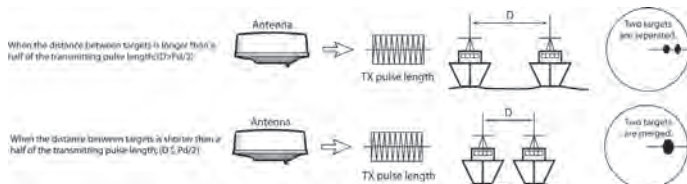


Figure 21.32 - Range Resolution

The range resolution is defined as the minimum distance between two targets in the same bearing which are discriminated as two images in the radar picture.

Bearing Resolution

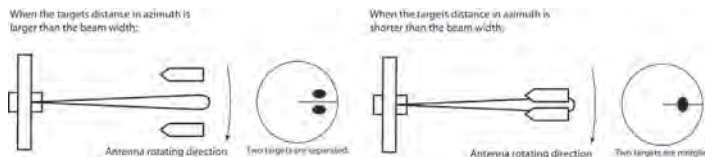


Figure 21.33 - Bearing Resolution

Bearing resolution is defined as the minimum bearing where the two targets of the same distance are displayed separately as two independent images on the screen and is determined by the transceiver **Horizontal Beam Width**.

Radar Troubleshooting

Troubleshooting Direct Connections

Test the Connection without the Radar Wizard

If the Radar wizard is unable to see the IR2, try to locate the radar in another manner:

1. Power the radar on and wait 1-2 full minutes for the radar to default to the correct IP address.
2. Reboot your computer.
3. Once the software and radar are functioning, select **START | Run**.
4. In the field provided, type the following: **Ping 192.168.0.1 -t**

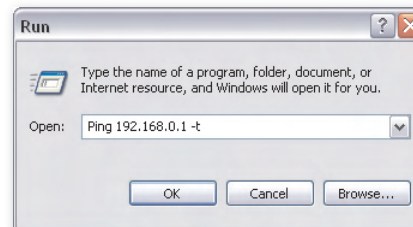


Figure 21.34 - Run Window

5. This ping function requests a return message from the radar. You should see the following:

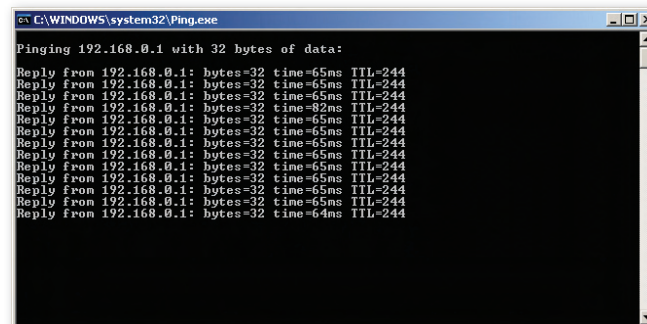


Figure 21.35 - Ping Response

6. Once the radar responds, close the Run window.
7. If the ping request does not respond or gives the message "Hardware error", "Request timed out" or anything other than "Reply from 192.168.0.1:...", there is something wrong with the connection.

To troubleshoot the connection, check the following:

1. The PC and the IR2 Control box are connected with a crossover cable and not a straight through cable.
2. The Network Interface Card (NIC) software is installed correctly.
3. The radar is powered on and has been for at least one minute.
4. The LED lights on the RJ-45 connector for both the PC and the MDS box are illuminated and/or blinking. The left-most LED should remain solid, while the other LED may blink.
5. Verify the IP address and Subnet mask are correct.
6. If you are uncertain about the PC's network configuration, please contact the network administrator or the NIC provider's technical support.

Troubleshooting Network Connections

Test the Connection without the Radar Wizard

If the Radar wizard is unable to see the IR2, try to locate the radar in another manner:

Power the radar on and wait 1-2 minutes for the radar to obtain an IP address from the Router/hub. The IP address assigned to the radar is dynamic and may change if the radar is powered off for a period of time or if the router/hub is re-powered.

The Router that Jeppesen Marine recommends you use allow you to view the DHCP table to obtain all the devices on the network. Using this tool for your Router, locate the IP address of the IR2 Radar. It will be in the list as: RadarSensor, as shown in Figures 21.36-7.

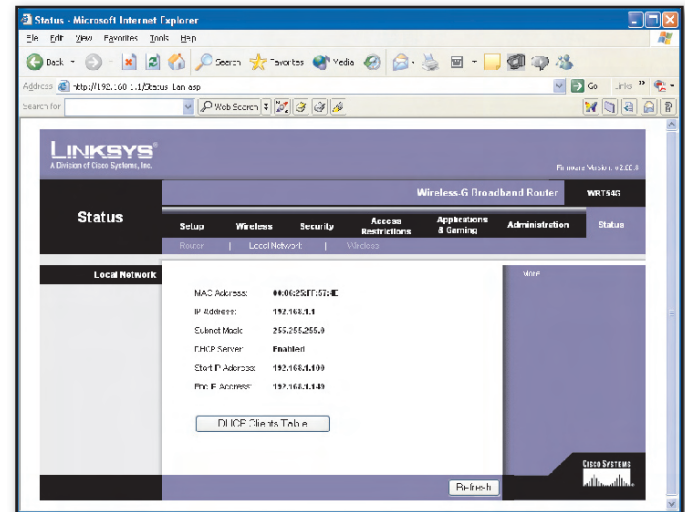


Figure 21.36 - RadarSensor

With this particular Linksys router, type the IP address of the router into the Internet Explorer address field to get to its diagnostic pages. Clicking on the Status tab displays the image. The DHCP Clients table button shows the entire list of devices on the network.

Client Host Name	IP Address	MAC Address	Expires	Delete
radar	192.168.0.100	00:01:33:04:04:30	25:11:12	<input type="checkbox"/>
RadarSensor	192.168.0.101	00:0D:2E:00:00:00	25:11:12	<input type="checkbox"/>

Figure 21.37 - DHCP Clients Table

The RadarSensor is clearly identified with its accompanying IP address.

"Ping" the radar as described previously. Once the radar responds, close the Run window.

If the ping request does not respond or gives the message "Hardware error", "Request timed out" or anything other than "Reply from 192.168.0.1:...", there is something wrong with the connection. Check the following:

1. Verify that the IR2 works with the direct connect mode. This significantly reduces the possibility of failure in the IR2 Control box and focuses our attention on the network.
2. The PC and the radar are connected to a router/hub using straight through cables (hold connectors upside down side-by-side and verify that the color order is the same on both sides).
3. The Network Interface Card software is installed correctly.
4. The power to the radar has been "on" for at least one full minute.
5. The LED lights on the RJ-45 connector for both the PC and the MDS box are illuminated and/or blinking. The left most LED should remain solid, while the other LED may blink.
6. Verify the IP address and Subnet mask are obtained automatically.
7. If you are uncertain about network configuration, please contact the network administrator or the NIC provider's technical support.

Frequently Asked Questions

Q: I was tracking a target on my radar screen and it suddenly disappeared. What happened to it?

A: One of the most critical pieces of data for target acquisition is a stable and correct heading value. MARPA or AIS targets are generally lost when the target is too small, returning too weak of an echo or the heading fluctuates too much. If you experience lost targets consistently, you can create a recording of your radar and send it to us for further troubleshooting.

To record, right-click on the Radar display and select Record/Playback. The software will ask you for a file name. The extension for the existing IR2 radar is .RAD. Please zip your playback file and email to support@nobeltec.com with a description of your problem.

Q: My radar image occasionally looks "smeared". What is causing this?

A: Blurring of the radar image generally occurs due to one of two reasons:

- a. The PC is trying to perform too many computations at one time (Jeppesen recommends using a 1GHz system to prevent this).
- b. As the radar changes ranges, there is a transition between the previous pulse length the radar was using and the pulse length of the new range setting. The transition between these two causes the "smearing" to occur.

22 Sounder Usage

Starting the InSight Sounder



Once you have unlocked the Sounder feature and used the GPS/Port Setup Wizard to recognize the hardware, you can view Sounder using Nobeltec Navigation Software.

1. Launch Nobeltec Navigation Software.
2. Open a Sounder Display by clicking the Sounder ToolBar button or using the Sounder menu.

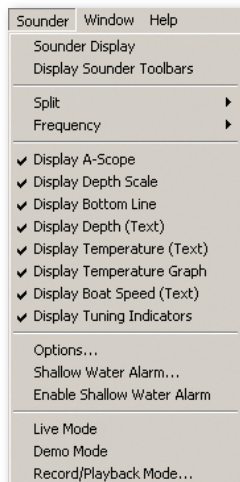


Figure 22.1 - Sounder Menu

The first time the InSight Sounder is used, it will automatically enter Live Mode and start searching for depth information. Sounder settings are saved from usage to usage, so you may need to switch into Live Mode if you have moved your boat since last usage.

As Sounder data is retrieved, the Sounder Display will be populated.

Understanding the Sounder Display

The InSight Sounder Display provides you with information in both text and graphic form. The display can be split or in full-screen mode. Sounder pings are represented over time, moving from right to left as the sea, lake or river floor appears beneath the transducer. In Figure 22.2, strongest returns are displayed in blue, weaker returns in red and orange and weakest returns in yellow. The sea floor is shown in brown and black and the bottom line is aqua. Color themes can be customized to suit your individual requirements.

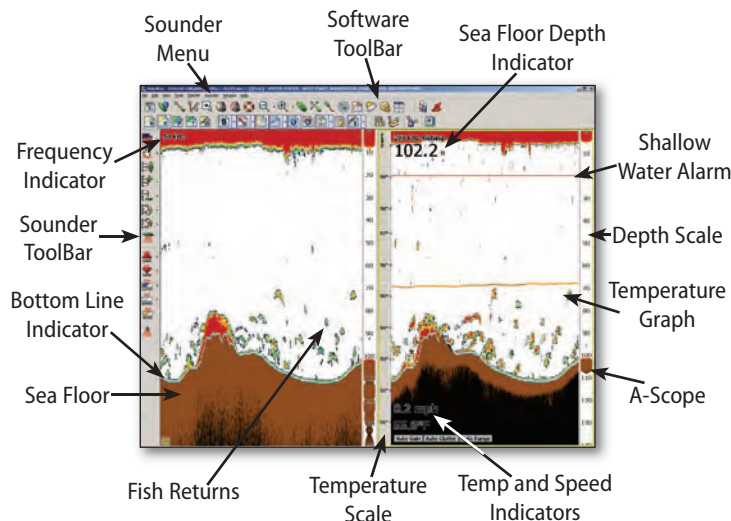


Figure 22.2 - InSight Sounder Display

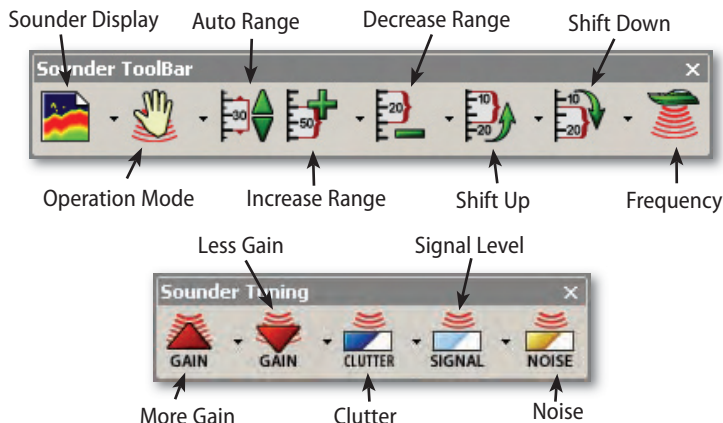
On the right side of the screen, the A-scope displays the enlarged, newest Sounder returns. These magnified returns are also drawn in proportional scale, where strongest returns are also the widest.

The Sounder Display also contains a number of text items, including Depth, Temperature, Speed, Frequency and automatic indicators. Most of these can be hidden to accommodate more Sounder information onscreen.

Sounder Display can be controlled in three ways: using the Sounder ToolBars, the Sounder Menu and using the Right-click menu.

Sounder ToolBars

The Sounder ToolBars allow you to use most of the features and configure your Sounder easily.



The Right-Click Menu

When you right-click your mouse in the Sounder window, a right-click pop-up menu appears onscreen and from this menu you can easily access Sounder Options, change your split screen settings, etc.

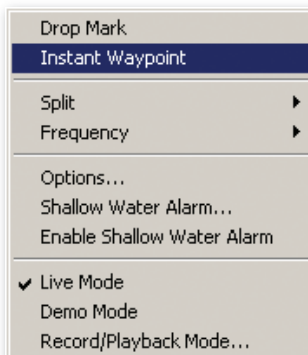


Figure 22.3 - Sounder Right-Click Menu

The Sounder Menu

The Sounder Menu can be accessed from the main program menu (see Figure 22.1). From the Sounder Menu, you can access features that are not included on the ToolBars. In addition, the Sounder Menu also allows you to display features such as the A-Scope, Bottom Line and Depth Scale.

Operation Modes

The InSight Sounder has three modes of operation: Cruising, Fishing and Manual. The first time your Sounder is activated, it will automatically start in Cruising Mode.

- **Cruising Mode:** An automatic mode designed to detect the bottom efficiently without user interaction. Less emphasis is given to fish detection in this mode and Gain and Clutter levels are also handled automatically. If you leave Sounder in this mode, it will search for the bottom indefinitely, displaying depth imagery in the display histogram.
- **Fishing Mode:** Gain and clutter is automatically handled and tailored for fish detection under various conditions. Use this mode to search for big fish as well as bait fish with minimal interaction needed.
- **Manual Mode:** For advanced users, Manual Mode provides complete control over all aspects of the depth sounder. You are free to modify Gain, Clutter, Signal Level and Noise filters to adjust the image.

Adjusting the Sounder Image

Complete control of the display is a hallmark of Jeppesen Marine solutions. This section describes the most important methods for adjusting the way the sounder echoes are represented on-screen. With the Nobeltec InSight Sounder, you are free to fine tune the behavior of the black box and transducer in a number of ways to produce an image you find satisfying. Automatic operation modes are provided for ease-of-use and limit which adjustments can be made. However, in Manual Mode, you can adjust the Sounder image in a number of ways, using the Sounder Tuning ToolBar.

If the Sounder Tuning ToolBar is not visible inside your software, enable it from the Sounder Menu. To load the Sounder Tuning ToolBar, click on **Sounder | Display Sounder ToolBars**. The Sounder Tuning ToolBar will be added to your view.

Gain

The Gain Up and Gain Down buttons adjust the gain. Gain settings control the sensitivity of the transducer and black box when receiving Sounder returns. High gain settings add more detail and feedback to the Sounder display while a low gain setting will only display the stronger returns.

NOTE: To manually control Gain settings, you must be in Manual Mode.

Clutter

Clutter onscreen may be caused by debris in the water, small schools of fish or other hard-to-pinpoint causes. Occasionally this information cannot be removed by lowering your gain setting. The Clutter filter will allow you to display only stronger returns and improve image clarity and sharpness. Clutter settings range from Off (no filter) to 9 (weaker returns are filtered out).

NOTE: To manually control Clutter settings, you must be in Manual Mode.

Signal Level

The Signal Level filter provides a threshold for displaying sounder returns. This filter removes weaker returns from the display (these can also be filtered further by adjusting Noise and Clutter). This filter specifies how strong the return for display must be to appear onscreen. Signal Level settings range from Off (no filter) to 5 (weaker returns are filtered out).

Noise

The Noise filter reduces the possibility of interference from nearby echo sounders and electronic devices. This filter can be enabled or disabled.

Colors

Another key way to adjust Sounder display is to use customizable color schemes. Eight pre-configured color schemes are available from **Tools | Options | Sounder** tab. Press **Colors** to access the Sounder Colors dialog box.

The Sounder Colors dialog box can be used to select any theme from the drop down box at the top or modify any theme to suit your own preferences. You can adjust the color of all sounder returns, add/remove/adjust color dividers, select the type of coloring method (Single/Solid/Gradient) and specify a wide range of colors for text, background, bottom line, etc. .

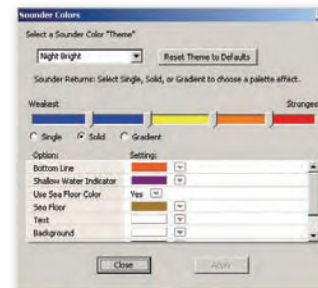


Figure 22.4 - Sounder Colors

To preview changes as you are making them, click **Apply**.

NOTE: At any time, you can reset a theme to its default color values by clicking **Reset Theme to Defaults**.

Additional Color Options

- **Bottom Line** represents the calculated depth of the sea floor.
- **Shallow Water Indicator** is represented by a solid line across the Display at the level where the Shallow Water Depth Alarm is set.
- The **Use Sea Floor Color** option can be set to Yes or No. If it is set to Yes, the Sea Floor color is used when drawing any returns beneath the bottom line. When set to No, the regular sounder return colors are used.
- **Text Color** is applied to any text in the Sounder Display.
- **Background Color** is applied to the background of the Sounder Display.
- **Highlight Color** is used to outline Text, allowing the text to stand out against other colors in the display histogram.
- **Temperature Color** is used to paint the temperature graph.

Key Sounder Features

Changing Frequencies

The InSight Sounder can operate at either 50 kHz or 200 kHz frequency or at both frequencies concurrently using a split screen (**Figure 22.5**).

In a zoomed view, the right side frequency is used. You can change the frequency with the Frequency button on the Sounder ToolBar, using the Sounder Menu or via the Sounder Display Right-Click Menu.

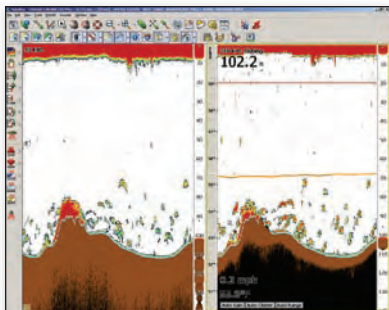


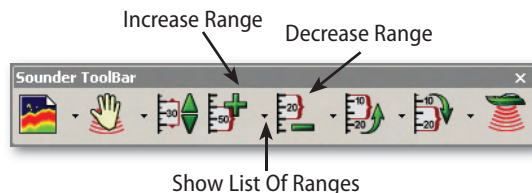
Figure 22.5 - Sounder Frequency Split Screen

The benefits of each frequency are described in Table 22.1.

50 kHz	200 kHz
<ul style="list-style-type: none"> Longer wavelength goes deeper, but with somewhat lower resolution. 	<ul style="list-style-type: none"> Shorter wavelength provides a sharper picture, but can't go as deep.
<ul style="list-style-type: none"> Less resolution is better for detecting big fish, but may miss bait fish. 	<ul style="list-style-type: none"> Finer resolution is better for finding smaller fish and viewing seafloor details.
<ul style="list-style-type: none"> Wider beam angle is better for seeing fish not directly under the transducer. 	<ul style="list-style-type: none"> Narrow beam is more focused and reduces the influence of rough water.

Table 22.1 Frequency Comparison

Adjusting the Range

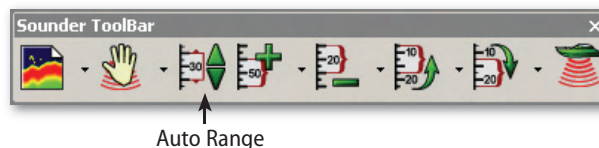


Range is maximum depth you determine that the InSight Sounder should display onscreen, plus any shift that is applied to the view. While the actual depth may exceed your settings, no data will be returned beyond this artificial limit. Range can be adjusted manually using the Increase Range and Decrease Range buttons. Single-clicking either button will increase or

decrease the range by one setting (based on measurement preferences). The small down arrow next to each button brings up a list of available ranges, allowing you to instantly jump to a specific range. Current Sounder range can be seen by examining the depth scale to the right of the Sounder Display.

Auto Range

Auto-range feature enables an automatic range finder within the Nobeltec Navigation Software. In this mode, Sounder will automatically maintain a range that allows the sea-floor to be viewed. Enable Auto Range by clicking the Auto Range button on the Sounder ToolBar, which also enables the Increase Range and Decrease Range buttons. Click Auto Range again to turn off the automatic mode and enable the manual range buttons.



Adjusting the Shift

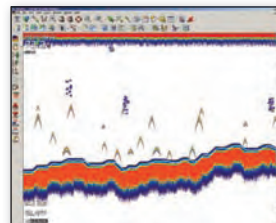


Figure 22.6 No Shift Applied

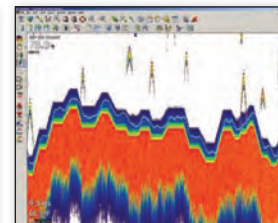
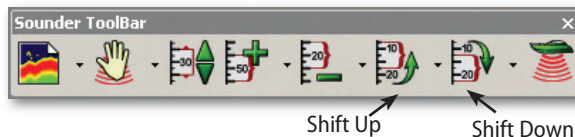


Figure 22.7 Same Screen with Shift Applied

When the sea-floor depth exceeds a practical, maximum setting, expanding Range causes Sounder returns to become too small to view clearly. The Shift function narrows return to only a portion of Sounder data.

To adjust the Shift, use the Shift Up and Shift Down buttons.



Split Views

The Split View function allows you to display multiple frequencies. Select a Split View from the Open Sounder Window button or from the Sounder menu. Available selections are Bottom Zoom, Custom Zoom, Bottom Lock, Sea Floor Discrimination and Dual Frequency. No Split returns the Sounder Display to a single frequency view without a split.

When a Split View is selected, any range or shift adjustment to the Sounder Display is applied to the side that has the "focus". The focus, represented by a yellow box drawn around the outside of the one side of the Split View or the other, indicates which side will receive ToolBar or menu commands.

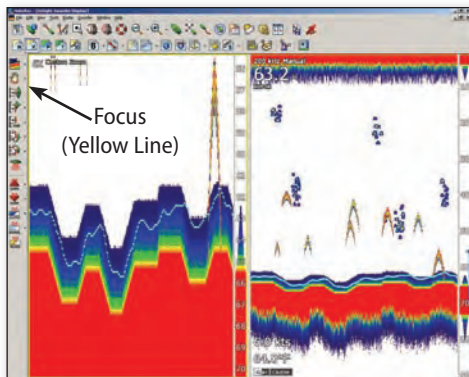


Figure 22.8 - Split View

Bottom Zoom

With the Bottom Zoom selected, the Sounder Display is divided in half. The left side contains a Bottom Zoom display, while the right side continues to display the regular sounder data. Bottom Zoom causes the bottom, when it is found, to be drawn larger. You can select various ranges to display using the Range controls. The ability to shift the view is disabled, because this is done automatically to maintain the sea floor on-screen as the depth of the bottom changes. When in a Zoom Mode, a Zoom Bar will appear that indicates the portion of the regular view that is being enlarged. Use this split view to keep a close eye on the bottom.

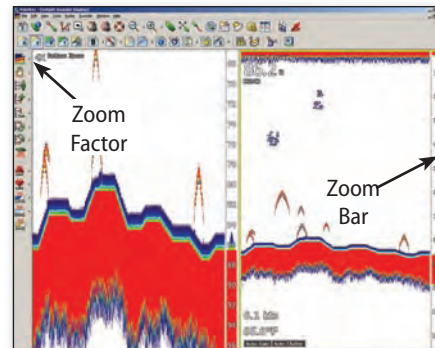


Figure 22.9 - Bottom Zoom

Custom Zoom

A Custom Zoom split view is much like a Bottom Zoom; the Sounder Display is divided in half and the left side shows a magnified version of the sounder echoes. However, with a Custom Zoom, you are free to adjust both the Range and Shift of the zoomed view. The Zoom Bar is displayed on the A-Scope, indicating the portion of the regular view that is being enlarged. In Custom Zoom mode, this zoom bar can be "grabbed" with the mouse and can be dragged up or down, causing the Custom Zoom shift to be adjusted. A Custom Zoom is ideal when you would like to see additional data but intend to move the custom zoom around.

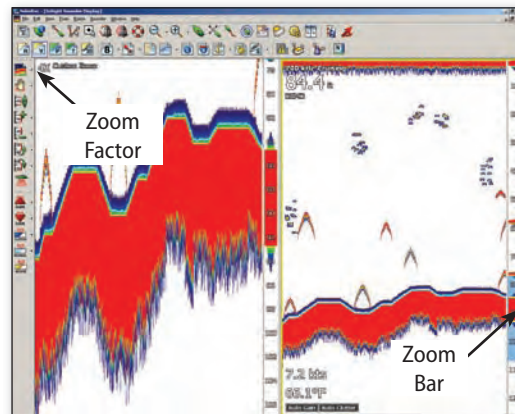


Figure 22.10 - Custom Zoom

Bottom Lock

The Bottom Lock split view presents an interesting view of the sounder returns. The sea floor is flattened in this view, allowing easy comprehension of how far a fish or other return is above the sea floor.

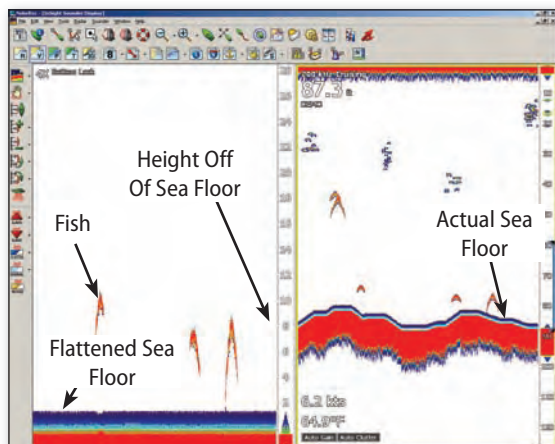


Figure 22.11 - Bottom Lock

Sea Floor Discrimination

The Sea Floor Discrimination split view is very similar to the Bottom Lock split view, in that the InSight Sounder automatically tracks the bottom. However, in this mode, much more of the sea floor is drawn and the sea floor is centered in the middle of the split view. Since some of the sound waves penetrate the sea floor before being returned, this Split View allows more of the returns beneath the sea floor to be seen. Weak returns often represent a soft sea floor, made up of sand, silt or seaweed. Stronger returns can mean a hard sea floor, made of rock or other hard material.

Dual Frequency

The Dual Frequency split view simply allows both 50 kHz and 200 kHz sounder pings to be displayed at the same time.

Shallow Water Alarm

A depth sounder is for many people a safety device. In new waters especially, having "eyes" under the vessel, in the form of a depth sounder, provide extra assurance for safe travel. The InSight Sounder's shallow water alarm will sound whenever the bottom is detected as being shallower than where the alarm threshold is set. When the alarm is set, it can be viewed in the Sounder Display, as seen in the image below.

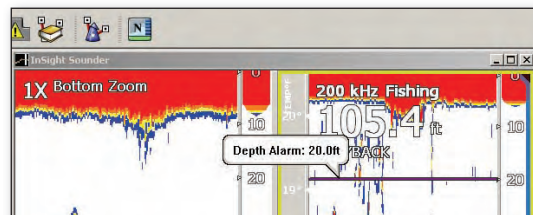


Figure 22.12 - Shallow Water Alarm Settings

To configure the shallow water alarm, right-click in the Sounder Display and select **Shallow Water Alarm** or select this item from the Sounder menu. The Shallow Water Alarm Settings dialog box is displayed and the alarm setting can be entered.

To enable the alarm, simply right-click in the Sounder Display and select **Enable Shallow Water Alarm**. A check mark indicates that the Alarm is set.

Advanced Sounder Features

Temperature and Temperature Graph

If your transducer is configured with a temperature sensor or another temperature sensor is configured to feed temperature information into Nobeltec Navigation Software, the temperature value can be displayed on the Sounder Display. There are two ways to temperature:

- **Temperature as Text.** Use this option to simply display the current temperature in the units of measure you've selected. Units of measure can be selected from the **Tools | Options | Units** tab.
- **Temperature Graph.** When enabled, a temperature scale will appear along with a moving graph line indicating the temperature and trending information. Use this option to track subtle changes in temperature.

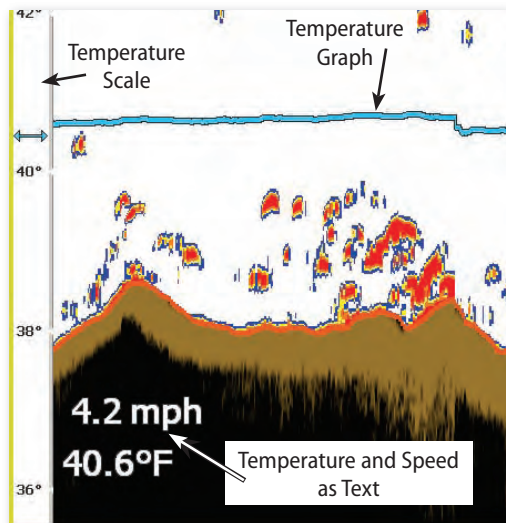


Figure 22.13 - Temperature Graph

Speed Through Water Display

If your transducer is configured with a speed sensor or another speed sensor is installed and configured to transmit SOW information using NMEA 0183 sentences, this value can be viewed on the Sounder display as well.

Dropping A Mark or an Event Mark

When GPS data is available, each Sounder echo is automatically associated with a GPS position. This means that you can find a return in the Sounder Display, drop a navigation mark, called an "Event Mark" and see that mark onchart as well as in the Sounder Display window. When you drop an Event Mark, the Event Mark icon is placed at the vessel's current location and a small white triangle is placed at the top of the Sounder Window to indicate the Event Mark's location relative to the boat icon.

To add an Event Mark, right-click on the Chart Window and select **New | Event Mark** or add the Event Mark ToolBar button to your program ToolBar.

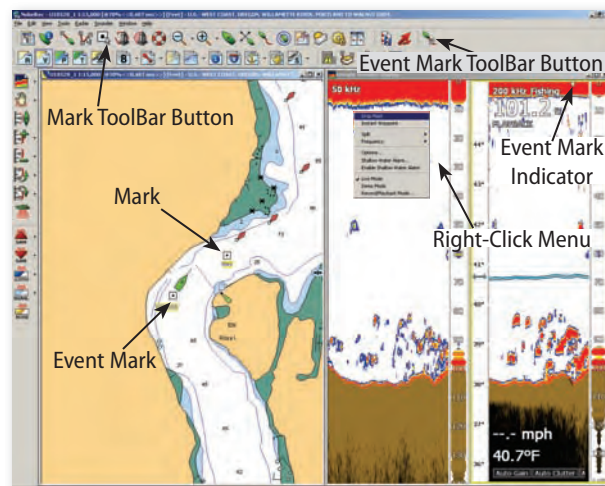


Figure 22.14 - Marks and Event Marks

You can also drop a Mark onchart. A Mark can be placed on any object displayed in the Sounder Window. In other words, a Mark is independent of the vessel's position. To place a Mark, select **Mark** from the program ToolBar and then click on the targeted object in the Sounder window. A Mark will appear onchart in the location you specified.

Instant Waypoint

NOTE: Similar to the Event Mark, an Instant Waypoint cannot be added to the Sounder Display unless GPS information is being received by Nobeltec Navigation Software. Furthermore, the software must also be connected to an autopilot in order for autopilot commands to be sent.

Occasionally, an echo shown in the Sounder Display will be interesting enough that you decide to return to that location. By adding an Instant Waypoint and selecting the returned target on the Sounder Display, an immediate command can be sent to the autopilot, directing the vessel back to that location. Use the Instant Waypoint button on the main ToolBar or select **Instant Waypoint** from the right-click menu on the Sounder Display, to create an Instant Waypoint.

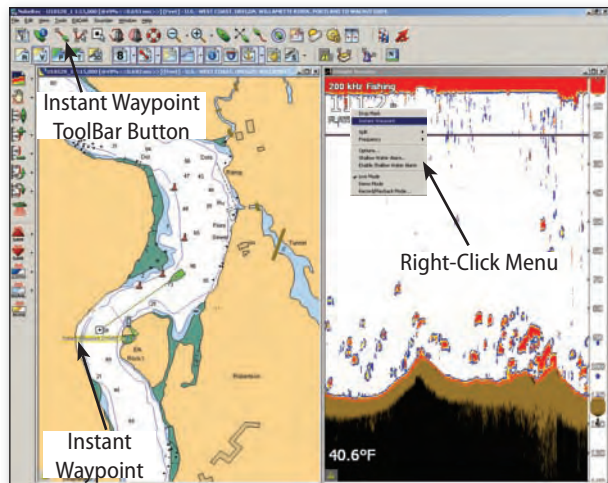
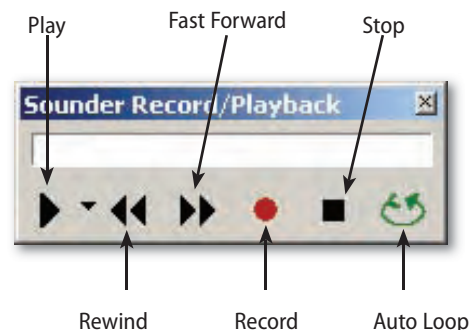


Figure 22.15 - Instant Waypoint

In Demo Mode, you view simulated sounder echoes while adjusting any of the Sounder controls. Exit Demo Mode by selecting **Live Mode** or **Record/Playback Mode**.

Record and Playback

The ability to record the sounder data to a file for later playback provides a great opportunity for "after trip" analysis. Examine the saved file to better understand interesting sea floor and bottom composition or analyze where fish were located in relation to thermoclines and structure. If GPS position data was available when the file was recorded, you can even drop marks on places of interest during playback review to facilitate future trip planning.



You can enable the Record/Playback controls by selecting **Record/Playback Mode** from the right-click menu or from the **Sounder Menu**. Much like DVD/VCR controls, pressing the red record button will begin the recording after asking you to identify a file to save the data to. At any time, you can playback a file using the same control.

Configuring the InSight Sounder

The Nobeltec InSight Sounder allows you to configure and personalize a number of settings to create a display that is customized to your needs. While all colors and options have been given default values that are appropriate for most installations, you may find that your particular requirements aren't suited to the default settings. You can access configuration options by right-clicking in the Sounder Display and selecting **Options** or from the Main Menu by clicking on **Tools | Options | Sounder**.



NOTE: Measurement units are adjusted from **Tools | Options | Units** tab.

Ghost Cursor

When the InSight Sounder is used along with a GPS, your Nobeltec Navigation Software is able to associate each sounder ping with a specific Lat/Lon. This feature allows you to pinpoint exactly where a specific sounder ping was acquired by rolling the mouse over the Sounder Display. A "ghost" (or duplicate) image of the cursor will appear in any open Chart window pane, indicating where the sounder ping was taken. Enable this option from **Tools | Options | Sounder**.

Night and Twilight Mode

Nobeltec Navigation Software is designed to be usable in low or dim light environments. This means that you can easily switch the Nobeltec Navigation Software into Night or Twilight modes using your mouse or a keyboard. To enter into one of these low light viewing modes, click on **View | Screen Intensity** and then **Normal**, **Twilight Colors** or **Night Colors**. To toggle through these selection using the keyboard, press **CTRL-I**.

Demo Mode

Demo Mode allows you to test many of the features of the InSight Sounder and familiarize yourself with that device's operation. Right-click in the Sounder Display window and select **Demo Mode** to activate this feature.

Configuration Options

- **Open Sounder Display at Startup** – Indicates whether or not a Sounder Display should be created whenever Nobeltec Navigation Software is started. Default is Yes.
- **Histogram Speed** – Speed at which the sounder returns are scrolled across the screen. Default value is 1:1.
- **Display A-Scope** - Default is Yes.
- **Display Depth Scale** – Indicates whether or not depth numbers appear down the right side of the Sounder Display. Default is Yes.
- **Display Bottom Line** – Default is Yes
- **Display Depth (Text)** – Default is Medium.
- **Display Boat Speed (Text)** – When enabled, the speed of the vessel is displayed in the bottom left corner of the Sounder Display. Default is Medium.
- **Display Temperature (Text)** – Default is Medium.
- **Display Temperature Graph** – When enabled, a moving indication of water temperature appears on the Sounder Display. Default is No.
- **Display Tuning Indicators** – When enabled, Auto Gain, Auto Clutter and Auto Range indicators are drawn on the bottom of the screen. Default is yes.
- **Show Ghost Cursor** – When the mouse cursor is moved over a Sounder window, the location of Sounder returns are indicated by crosshairs in any chart windows that are visible. Default is Yes.
- **Open/Close Sounder ToolBars with Sounder Window** – When enabled, Sounder ToolBars open/close when the Sounder Display is opened/closed. Default is No.
- **Display Shallow Water Alarm Indicator** – Default is Yes.
- **Transducer Offset** – This field indicates the vertical distance from the surface of the water to the transducer's installed location, which is then used to calculate actual bottom depth and for monitoring the shallow water alarm.
- **Temperature & Speed Calibration** – Temperature and speed values may need calibration. If you believe that the temperature or speed reported is incorrect, these controls adjust the end values.
- **50 kHz and 200 kHz Gain Calibration** – These controls adjust the gain applied to each frequency.
- **Colors** - From **Tools | Options | Sounder** tab, you can access the Sounder Colors dialog box.

Sounder NMEA Data

NMEA Data Input

If you have external (non-Nobeltec) speed and/or temperature sensors and they produce NMEA 0183 data sentences, the data they produce is usually compatible with Nobeltec Navigation Software, just as data received from non-Nobeltec GPS or other NMEA sensors. Incoming data can be displayed on the Console and Sounder Display.

NMEA Data Output

To output NMEA 0183 data for speed, depth or water temperature to another device, you can configure an Output/Autopilot port to send this data.

1. Select **Tools | Options | Ports: Configure**.
2. Select the **Output/Autopilot** port you would like to enable, by placing a check-mark in the check box.
3. Click **Configure All Output/Autopilot Ports**.
4. On the **Configure Output/Autopilot** Settings dialog box, select the NMEA strings you would like to transmit. Recommended sentences are VHW (Water Speed and Heading), DPT (Depth), DBT (Depth Below Transducer) and MTW (Water Temperature).
5. Click **OK** to confirm your settings.
6. From the **Ports: Configure** tab, select **View Data** to see which data is being sent.

Sounder in NavView (Admiral Only)

The InSight Sounder has been designed to work especially well inside the NavView interface mode. Using NavView, you can configure your InSight Sounder to fill an the entire screen or one of multiple window panes. In addition, you can create multiple Views, allowing you to step through chart, 3D, radar and sounder displays effortlessly.

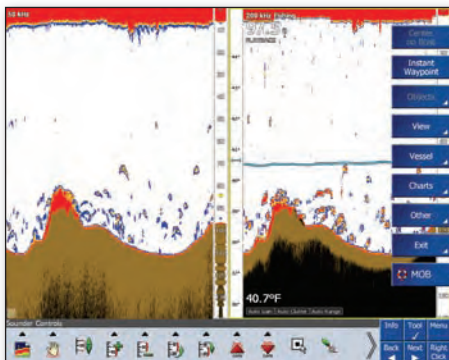


Figure 22.16 - Sounder in NavView

ToolBar in NavView

All of the right-click menu items are available in the Sounder Display window in NavView. When focus is given to the Sounder Display, a Sounder ToolBar is available at the bottom of the screen (see **Figure 22.16**). Select **Tool** from the menu in the bottom right-hand corner of the screen to make the Sounder ToolBar appear. The right-facing chevron (arrow) indicates that additional buttons are available for this ToolBar.

Sounder and Fishfinder Basics

How It Works

A Sounder is capable of producing electrical pulses, which the transducer converts into sound waves, sent downwards in a cone-shaped column. As the sound wave hits objects in the path of that column, such as fish, seaweed, debris, structures and eventually the sea floor, reflected sound waves are returned to the transducer. The transducer converts returning sound waves

into electrical pulses that can be converted into a visual image of that column beneath your boat.

The Nobeltec InSight Sounder converts the electrical pulse returned by the transducer into digital data that can be displayed on your computer screen, which provides you with a running display of the water, objects and sea floor beneath your boat. The strength of that reflected sound wave is also visible. Stronger returns, which may represent large fish or hard surfaces, can be represented in one set of colors, while weak returns from debris, small schools of fish and soft sea floor can be represented with other colors.

Frequency of Sound Waves

The frequency of the sound waves created by the transducer impacts the type of reflected returns. Higher frequency sound waves, such as 200 kHz, do not penetrate the water deeply, but they return greater detail from the items they contact. For this reason, the InSight Sounder in 200 kHz frequency is great for fish detection. However, transducers are rarely able to penetrate deeper than 600 feet in 200 kHz mode. Lower frequency sound waves behave in the opposite way. They offer much deeper depth penetration, but provide less detail from objects they contact. All transducers offered by Jeppesen Marine are dual frequency (50 kHz/200 kHz).

The Information On Your Screen

Figure 22.17 displays a sample image from a sounder/fishfinder that calls out the most notable elements. Stronger returns are represented with darker colors and weaker returns in lighter colors.

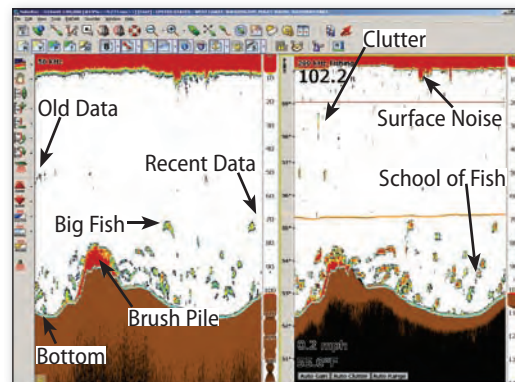


Figure 22.17 - Sounder Sample

Impact of Beam Angle

Transducers can produce the sound waves in differing cone shapes. A wide beam (up to 45 degrees) is useful in shallow water, because it allows for a wider area of coverage, though with decreased clarity. A narrow beam (approximately 5 to 16 degrees) is appropriate for deep water applications. In both cases, there are opportunities for "dead zones" that block out coverage.

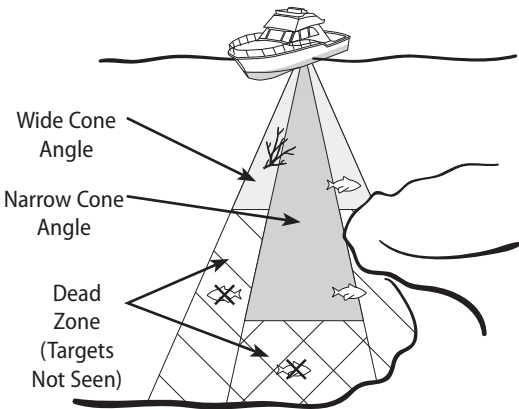


Figure 22.18 - Transducer cone angle

Strength of Electrical Pulse

The transducer is triggered to send out sound waves by the InSight Sounder Black box. The strength of electrical pulse sent to the transducer by the black box is dependent on the electrical rating (in wattage) of the transducer as well as the material used in creating the element inside of the transducer. The 1kW transducers carried by Jeppesen Marine are 50x more sensitive at 50kHz and 13 times more sensitive at 200kHz, than 600W models.

Troubleshooting Sounder

No Sounder Echoes Appear On Your Screen	
Possible Cause	Possible Solution
Nobeltec Navigation Software is not 7.1 or later.	Go to www.nobeltec.com/support to download the latest Service Pack or contact Jeppesen Marine to obtain an update CD.
Sounder unlock code has not been entered.	Go to www.nobeltec.com/services/voucher to enter your voucher number and receive your unlock code. Once you have the unlock code, follow the instructions for entering your unlock code in Chapter 2 of this guide.
The SeaLevel USB/RS-422 adapter is not installed properly in the device manager.	Use the accompanying CD to reinstall SeaLevel drivers. Follow this guide for instructions on installing sea level devices.
The Status LED on the black box is off.	Check the fuses and the circuit breakers. Check power to the black box with a voltmeter. Also verify that the data cable between the computer and the black box is properly wired and connected.
The Status LED on the black box is flashing green.	The Nobeltec InSight Sounder and the Nobeltec Navigation Software are not communicating properly. Check the wiring of the data cable.
The Status LED on the black box is red.	There is a problem with the InSight Sounder. Please contact Technical Support.
The Status LED on the black box is steady green.	The Nobeltec InSight Sounder is communicating with your Nobeltec Navigation Software. You should now switch to an automode such as Fishing or Cruising. If limited echoes are displayed, operating in Manual mode may result in clear echoes not appearing until the Gain has been properly adjusted.

Table 22.2 - No Sounder Image

Cannot Click On the "Configure InSight Sounder" Option in the GPS/Port Setup Wizard

Possible Cause	Possible Solution
The InSight Sounder product voucher has not been redeemed.	Go to www.nobeltec.com/services/voucher to enter your voucher number and receive your unlock code. Once you have the unlock code, follow the instructions for entering your unlock code in Chapter 2 of this guide.
The InSight Sounder unlock code was entered or written down incorrectly.	Verify that all numbers and/or letters are correct by going to www.nobeltec.com/store or contacting Sales or Technical Support at (800) 598-4976. Be sure to have your serial number available when using either option.
Click on Help About Nobeltec on the main menu. Make sure that the serial number listed here is the same one that was used to redeem the product voucher.	If a different serial number was used to redeem the product voucher, you will need to go through a process called a Hard Uninstall. If this is the case, DO NOT attempt to uninstall the software yourself. Instead, please contact the Technical Support Department at (800) 698-4976 and they will walk you through the special hard uninstall process.
Nobeltec Navigation Software is not 7.1 or later.	Go to www.nobeltec.com/support to download the latest Service Pack or contact Jeppesen Marine to obtain an update CD.

Table 22.3 - Cannot Configure Sounder in GPS/Port Setup Wizard

GPS/Port Setup Wizard Does Not Detect Sounder

Possible Cause	Possible Solution
The SeaLevel USB/RS-422 adapter is not installed properly in the device manager.	Use the accompanying CD to reinstall SeaLevel drivers.
The Status LED on the black box is off.	Check the fuses and the circuit breakers. Check power to the black box with a voltmeter. Also verify that the data cable between the computer and the black box is properly wired and connected.
The Status LED on the black box is flashing green.	The Nobeltec InSight Sounder and the Nobeltec Navigation Software are not communicating properly. Check the wiring of the data cable.
The Status LED on the black box is red.	There is a problem with the InSight Sounder. Please contact Technical Support at (800) 598-4976.
The Status LED on the black box is steady green.	The Nobeltec InSight Sounder is communicating with your Nobeltec Navigation Software. You should check the transducer connector to ensure it is wired properly and check the transducer impedance with an ohmmeter. If these all appear to be in good order and the Sounder is still not detected, please contact Technical Support at (800) 598-4976.

Table 22.4 - GPS/Port Setup Wizard Does not Detect Sounder

These are the most common errors associated with the InSight Sounder. If you are experiencing an issue that is not addressed here, please contact Jeppesen Marine's Nobeltec Technical Support Team.

23 Bathy Recorder

The Nobeltec Bathy Recorder, sold as a Plus Pack to Visual Navigation Suite (VNS) and Nobeltec Admiral, enables you to record sea floor topographic information using your Sounder/Depth Finder device and to incorporate that data into your 3D display.

When you use the Bathy Recorder to customize your sea floor charts, those charts will constantly improve with repeat trips over the same areas, enabling you to have a perfect picture of important sea floor terrain, as well as your favorite fishing and diving spots. The data provided by your Bathy Recorder can be more specifically oriented to your needs than any chart you can purchase. And, with Jeppesen Marine's exclusive, high-quality 3D-rendering, the Nobeltec Bathy Recorder will give you an unparalleled 360° awareness of your environment.

Bathy Recorder can give you specific contour lines that standard 3D charts available don't display, as well as complete control of the contour line display. Create your own custom contours to see the areas of sea-floor topography that are important to you.

Charts and Data

Bathy Recorder uses and creates three dimensional (3D) bathymetric (sea-floor) data in real-time. While you can use the Bathy Recorder feature to display only the data recorded by your Bathy Recorder, Jeppesen Marine highly recommends purchasing Passport Deluxe™ Chart Permits for every region where you intend to use Bathy Recorder. Passport Deluxe Charts supplement your bathymetric coverage and add continuity to the 3D image.

Passport 3D Bathymetric Charts (North America only)

Passport 3D bathymetric charts contain high-resolution sea-floor elevation data, spaced at regular intervals. These charts are part of the Passport Deluxe chart packages for North America. Data points contain latitude, longitude and elevation. Nobeltec Navigation Software interprets this data and renders it into a 3D image, combining charts with a 3D view of the ocean floor.

ChartGridding

Since Passport 3D bathymetric charts are only available in North America, you can use the **ChartGridding** feature in Nobeltec® VNS™ or Admiral™ to create 3D sea floor topographic data from 2D vector charts in areas where

high-resolution sea floor charts are unavailable. ChartGridding can also be used to supplement existing vector data, even in places where the high-resolution 3D data is available.

Unlocking Bathy Recorder

Your Bathy Recorder product distributor will either provide you with an Unlock Code or a Voucher, which can be redeemed online for an Unlock Code. No matter how you receive it, your Unlock Code is used to unlock the Bathy Recorder features already embedded in Nobeltec Navigation Software.

Upon installation of the Bathy Recorder Unlock Code, Nobeltec Navigation Software will recognize the Bathy Recorder and is now ready for immediate use to record and display sea floor data.

To use your Unlock Code to unlock Bathy Recorder, follow the instructions on **Page 6 - Installing New Chart Permits and Unlock Codes**.

Upon Install

When you launch Nobeltec Navigation Software, the startup splash screen will now display Bathy Recorder as one of the supplemental installed features.

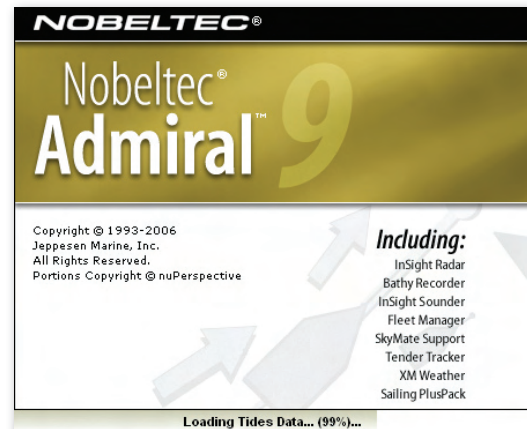


Figure 23.1 - Startup Splash Screen with Bathy Recorder

The Benefits of Bathy Recorder

Terrain rendered using Bathy Recorder provides you with an awareness of depth, terrain values and possible hazards that standard high-resolution 3D cannot provide. Without Bathy Recorder, standard 3D chart terrain may not reveal significant sea floor detail.



Figure 23.2 - High Resolution Passport Deluxe 3D Bathy Data

Using Bathy Recorder data to supplement the Passport 3D bathymetric data, terrain samples gain a crispness and specific clarity with which other 3D charts cannot compete.

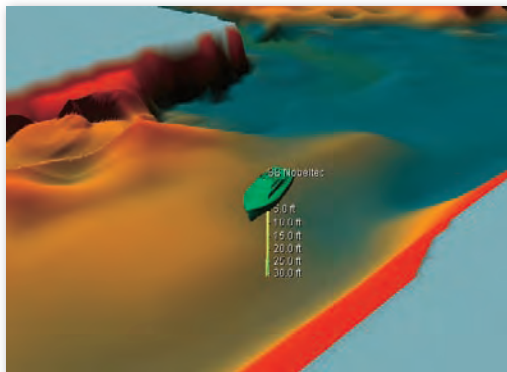


Figure 23.3 - Passport Deluxe 3D Bathy Data Enhanced by Bathy Recorder

Transducer Offset Settings

When using the Bathy Recorder, the Transducer Offset settings must be configured before any recordings can be made with the tool.

Transducer Offset can be accessed using the Shallow Water Alarm Settings window, which is available either via **Tools | Options | Sounder** or via **Sounder | Options** and clicking the **Transducer Offset...** button in the lower left of the window.

The Transducer Offset field must be set to > 0 (greater than 0) feet.

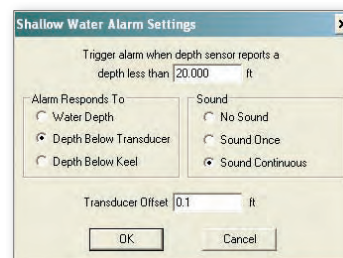


Figure 23.4 - Shallow Water Alarm Settings - Transducer Offset



NOTE: In order to generate accurate bathymetric recordings, Bathy Recorder settings must allow for the waterline offset of the transducer.

Using a Sounder or Depth Finder

Bathy Recorder is designed for use with a Sounder or Depth Finder device that is connected to your onboard computer and can output NMEA 0183 depth data. When depth information is being received accurately by Nobeltec Navigation Software, the Console panel, on the right-hand side of the screen, will display Depth (Dpt) information.

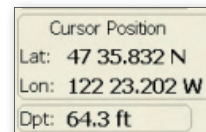


Figure 23.5 - Console Display with Depth Information



TIP: Choppy seas impact performance. Jeppesen Marine recommends that you do not use Bathy Recorder when choppy seas may give you an

inconsistent cone angle or if your boat is in a situation where the cone may not be consistently pointing downward.

Bathy Recorder Indicator



Whenever Bathy data is being recorded, a small indicator will appear in the upper right corner of the 3D window, indicating that the **Capture Bathy Recorder Data** option has been selected and that valid GPS and depth information is available.

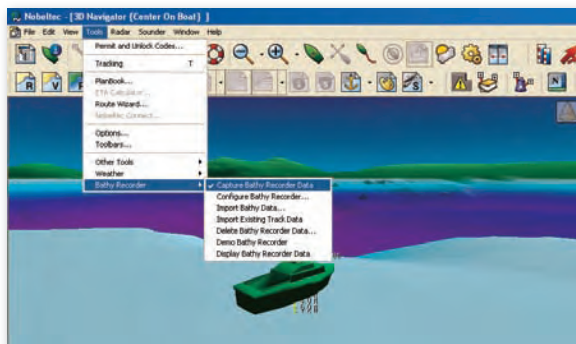


Figure 23.6 - Enable Capture Data w/ Right Corner Indicator



WARNING: Currently, Nobeltec Navigation Software tolerates a short loss in GPS and depth information. During this time, however, Bathy Recorder continues to record the last known good sample. This can result in erroneous depths being recorded during outages. Timeout occurs within 90 seconds.

NNS will automatically disable recording if your boat remains stationary or hasn't moved more than 100 meters after 30 minutes of recording. Recording automatically resumes when the rate and distance of travel increases.

Locating, Deleting and Saving Bathy Files

Bathy Recorder files are stored on your hard drive and are named by date and your serial number (for example, 2006_256.9_13.####-####-####-#####.1.bth). These files are stored by default in \Program Files\Nobeltec\Visual Series\Bathy Recorder Data\. Files can be deleted or shared.

Daily batches of Bathy data files can be deleted at any time using the **Tools | Bathy Recorder | Delete Bathy Recorder Data**. This function only deletes a day or range of days (yesterday or prior) at a time (see **Figure 23.7**).

Recorded bathymetric files can also be copied and shared with other users as you would share any other data file.

You also have the option of deleting the Bathy Recorder data within any Circle or Closed Boundary on the Chart window pane. To delete data within a boundary object, right-click on the boundary object and select **"Delete BR data in this boundary object"** from the pop-up menu. This will delete all Bathy Recorder data, in all Bathy Recorder files, for the area enclosed by this boundary.



Figure 23.7 - Delete Bathy Recorder Data

Compressing Bathy Recorder Files

Bathy Recorder files are typically large. A large number of uncompressed Bathy files can result in poor system performance of Nobeltec Navigation Software. Whenever you have 300 or more Bathy Recorder files stored, the Bathy Recorder engine will automatically compress and merge your Bathy Recorder files upon program shutdown.

Tools | Bathy Recorder

There is a **Tools | Bathy Recorder** menu created when you unlock Bathy Recorder, with the following options:

- **Capture Bathy Recorder Data:** This option starts the recording process of bathymetric data being transmitted by your Sounder or Depth Finder device (see **Figure 6**). Throughout recording, the Bathy Recorder indicator will appear in the upper right-hand window of the 3D display. Nobeltec Navigation Software must be receiving both GPS position and depth information from a depth sounder before sea floor topographic data samplings are taken. You can verify that both data feeds are functioning using the console.



NOTE: If GPS position and depth information are not available, an error message will be displayed in the NavBar Message Tab.

- **Configure Bathy Recorder:** This allows you to change your Bathy Recorder default settings after setup. Clicking this option will open **Tools | Options | 3D/Bathy**.
- **Import Bathy Data:** When selected, this option opens a standard browser window for you to locate appropriate Bathy data to import into the Bathy Recorder. Data must be in tab-delimited format and should include latitude, longitude and depth. When data is imported, the 3D display window, if open, changes to "Explore" mode and is centered upon the first data point in the imported file.
- **Import Existing Track Data:** This allows you to convert saved boat track lines into Bathy Recorder data. Tracks can be easily created using Nobeltec Admiral or VNS. Track data can also be imported from an existing chart-plotter/Sounder onboard your vessel.



NOTE: You must have saved track data in order to perform this function.

- **Delete Bathy Data:** This opens a "Delete Bathy Recorder Data" dialog box where you may select to delete previously recorded bathymetric chart data by day or date range. This method removes an entire day or range of days of recorded data. *Earliest files that can be deleted are yesterday's or prior.*



NOTE: You will be asked to confirm deletion after clicking the Delete button before the selected files are permanently removed.

- **Demo Bathy Recorder:** Simulates the effects of using Bathy Recorder with existing bathymetric information, such as ChartGridding, etc.

When the simulation starts, Shaded Relief is enabled and the boat is set to follow a route. The simulation function takes bathymetric information from existing charts and applies current setup configurations, such as cone angle and rate of refresh. The 3D display shows this simulation until you select **Demo Bathy Recorder** again to turn off the demonstration.

Typically, the simulation mode will create its own temporary route based on settings previously determined by Jeppesen Marine. However, if there is a route you wish to simulate, you can open that route in Nobeltec Navigation Software, rename the route "BR DEMO ROUTE". The next time you click **Demo Bathy Recorder**, the route you saved will be demonstrated in the 3D display.



WARNING: *For safety reasons, the demo feature does not work when receiving GPS information. If you attempt to use the Demo Bathy Recorder feature when GPS data is being received, a warning message will display and the demo will not start.*

- **Display Bathy Data:** When selected, this feature uses Bathy Recorder data to contribute to the overall Nobeltec bathymetric features shown on chart, including Shaded Relief, Custom Contours, 3D and Route Wizard. This data is also used to build the 3D representation in the 3D display window. See also the **Tools | Options | 3D/Bathy | Bathy Recorder: Display Bathy Recorder Data** option.

Tools | Options | 3D/Bathy

Bathy Recorder settings can be controlled using the **Tools | Options | 3D/Bathy** tab. See **Chapter 8 - Properties & Options** for **Tools | Options | 3D/Bathy** tab settings.

Custom Contours

When the Bathy Recorder product is installed, custom contours become available. See **Chapter 8 - Properties & Options** for **Tools | Options | Custom Contours** tab settings.

24 Sailing Plus Pack

The Nobeltec Sailing Plus Pack is an upgrade package available for Jeppesen Marine's Nobeltec Visual Navigation Suite (VNS) and Nobeltec Admiral.

Sailing Plus Pack Polars and resulting performance data help you make the best decisions on how to sail your boat. The Polars provided in this Plus Pack are delivered through a partnership with US Sailing® and are designed to provide you with that organization's high-quality official polar data.

The standard Polars you receive with Sailing Plus Pack serve as excellent starting points. You can also request specific Polars based on your unique rig and hull configurations for a wide variety of boats by contacting US Sailing directly at 1-800-US-SAIL-1.

Terminology

The following are some key terms to help you understand Sailing Plus Pack:

Term	Definition
Active Polar	The collection of polar data that is currently selected for the boat.
Lay Line	An imaginary line indicating the optimal course to a windward or leeward mark on which a sailboat can sail directly to its target.
Polars	Polar lines comprise a graph of your target boat speed based on the True Wind Speed (TWS) and True Wind Angle (TWA). Polars are valuable inputs to tactical sailing calculations, such as lay lines.
Polar Diagram	The Polar Diagram represents the boat's predicted or actual performance or progress into the wind (also known as VMG) given various angles of the wind in relation to the bow.
Target (Boat Speed)	For a given angle, this is the speed at which you should be gaining ground (BSP).

Table 24.1 - Terminology

Unlocking Sailing Plus Pack

Once you purchase Nobeltec Sailing Plus Pack, your Jeppesen Marine product distributor will provide you with an Unlock Code. This Unlock Code is used to unlock the Sailing Plus Pack features already embedded in Nobeltec Navigation Software.

To use your Unlock Code to unlock Sailing Plus Pack, follow the instructions on **Page 6 - Installing New Chart Permits and Unlock Codes**.

The Polar Display

Once the Sailing Plus Pack is unlocked, you can open the **Polar Display** window under **Sailing | Polar Display**. See **Figure 24.1**.

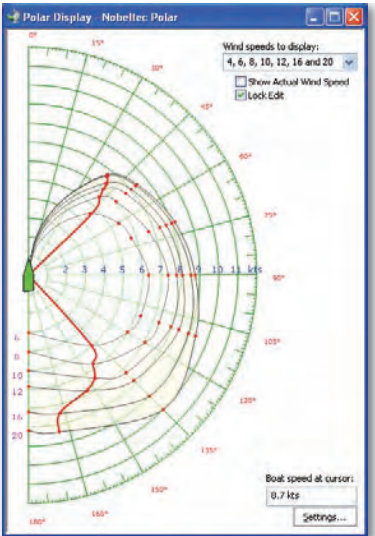


Figure 24.1 - Polar Display

To Open an Existing Polar

1. Open **Sailing | Polar Display...**
2. Click **Settings** in the Polar Display window.
3. Click the **Polar Values** tab.
4. Click **Load Polar File...** The Open dialog box will automatically filter for

Nobeltec Polar (*.spp) files.

5. Select the polar file and click **Open** to load it.
6. Click **OK**; the Polar Display window opens.

This window contains the following fields:

- **Name.** The name of the active polar appears in the title bar of the polar display window. If no polar is selected, a message appears on the polar diagram stating this.
- **The wind speeds to display.** Select the polar lines to appear on the diagram. The Kts per hour options include:
 - **All**
 - **All Even Numbers**
 - **All Odd Numbers**
 - **4, 6, 8, 10, 12, 16 and 20** (this is the default)
 - **5, 10, 15 and 20**
 - Each number that is stored in the polar.
- **Show Actual Wind Speed.** Place a mark in this check box to display the actual wind speed instead of a wind speed selected from the Wind speeds to display drop-down list. The actual wind speed updates based on the Auto Record Real Time Data Interval setting in Polar Display Settings.
- **Lock Edit.** Place a mark in this check box to prohibit on-screen editing to the current polar.
- **Boat speed at cursor.** When you move the cursor around the polar diagram, the Boat Speed at Cursor box updates with the speed where your cursor is located. If you move the cursor outside of the polar, the value returns to "N/A".
- **Settings.** Click this button to open the **Polar Display Settings** window. You can also open this window under the Sailing menu.

Polar Display Settings

The Polar Display Settings window is where you can create and manage your polar diagrams using the **Polar Values** tab. Use the **Display Settings** tab to determine what objects to include on the diagram and their colors. See Chapter 8 - Tools and Options for more information on the **Sailing** tab fields.

To open the Polar Display Settings:

- From the **Polar Display** window, click **Settings**.

- Open **Tools | Options, | Sailing**; then click the **Polar Display Settings** button.
- Open **Sailing | Polar Settings**.
- Click the **Polar Settings** button on the ToolBar.

Display Settings Tab.

The following settings are applied to the Polar Diagram itself. Fields available on the Display Settings tab include:

- **Units of Measure.** The default setting for this option uses the current speed measurement unit selected using **Tools | Options | Units**. The other selection is Seconds per Nautical Mile. The Polar data is stored in Kts. When you select another unit, such as kph or mph, the data will display in that unit but continues to be stored in Kts.



NOTE: All units of measure are adjustable from **Tools | Options | Units**.

- **Goal: Percentage of target speed.** Use this field to temporarily adjust target speed based on current conditions.
- **Real Time Data.** Real Time Data options include:
 - **Auto Record Real Time Data.** When you place a check-mark in this check box, NNS begins to collect data while underway and then manually build a polar from that data. Real time data points are logged during auto record of TWS/TWD/BSP information. As you receive data for true wind speed, true wind direction and boat speed, the values are saved in a file that contains only the interpolated wind speed, the angle and the interpolated boat speed. Wind speed is rounded up or down to the nearest integer value (e.g. 1.5000 to 2.499 become 2) and the boat speed is proportionally lowered or raised. Real time data points will only appear on the polar if you select an individual wind speed in the **Wind Speeds to Display** field. If you clear this check box, no real time data is collected and only saved data points are used.
 - **Interval.** This field controls the interval at which current values are recorded and the interval for displaying wind speeds. Selections include 1 second, 10 seconds, 30 seconds, 1 minute, 2 minutes, 5 minutes, 10 minutes and 30 minutes. The default setting is 1 minute.
 - **Clear Real Time Data.** Click this button to clear all data. When you click this button a message appears asking if you want to continue. You cannot Undo this action after you click the button.

- **Options.** Options settings include:
 - **Polar Line.** The selected color is applied to the curved line that it follows. Data points connect with a curved line that follows the expected interpolated boat speed at all angles.
 - **Polar Data Points.** The selected color is applied to the data points.
 - **Current Situation Dot.** This indicator is drawn if the polar diagram shows a polar line for the same wind speed (AWS) as the boat's current speed.
 - **Real Time Data.** This is the color of the real time data dots that are drawn periodically on the polar based on the Display Real Time Data settings.
 - **Show Boat.** This determines whether the boat and the current situation line and dot appears on the Polar display.
 - **Show Best Angles.** This toggles the display of the optimum angles for best upwind and downwind VMG.
 - **Fill Velocity Range.** This setting determines whether the area from the polar boat speed line is filled.
 - **Fill Color.** This setting fills in the polar drawn on the Polar Display if the Fill Velocity Range selection is **Yes**.

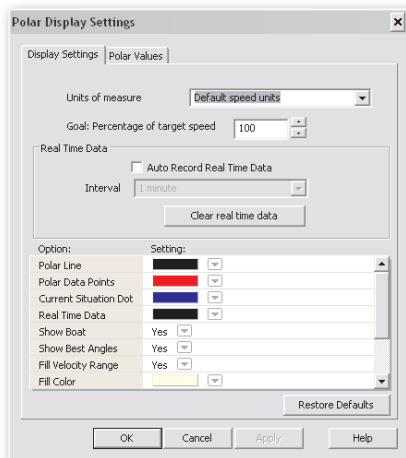


Figure 24.2 - Polar Display Settings - Display Settings tab

- **Background Type.** With this option you can customize the polar background. The choices include **Grid**, which shows the angles/boat speed circles as lines, **Gradient**, which fills in each speed range from the polar start color to the polar end color and **Alternating**, which alternates the polar start color and the polar end color from each speed range to the next.
- **Grid Color.** This is the color of the grid.
- **Polar Start Color/Polar End Color.** If using gradient or alternating, these are the colors from which the gradients or first alternating colors start or end in the velocity ranges or circles.
- **Restore Defaults.** Click this button to reset all display settings to the original, default settings that came with this Plus Pack.

Polar Values Tab

Create and manage your polar diagrams using the **Polar Values** tab. When you make changes, the polar is automatically saved when you close the Polar Display Settings dialog, when you close the application and automatically every 10 minutes. It is always a good idea to back up your data before you make changes. Fields available on the Polar Values tab include:

- **Active Polar file name** - The active polar file name appears. When you installed Nobeltec, no polar was selected, so the default Polar file name is "No Polar selected". The active polar filename is stored across sessions.
- **Polar Name** - Type the name you want to associate with this polar.
- **Load Polar File** - Click this button to browse to the folder where the polar file you want to load is located. In the folder named InstallLocation\Polars you will see stock polar files for common boats. The file type function searches for the Nobeltec polar extension (*.spp) but you can also select All Files (*.*), which allows you to open polar files from many sailing programs. When you select a file type designed for another sailing program, Nobeltec attempts to read the file. If the file cannot be read, a message appears stating this.
- **Save Polar** - Click to save any changes that have been made.
- **Save Polar As** - Click to save the changes to a new polar file name. A **Save As** dialog opens with the **Polars** folder as the default folder. You can, however, browse to any other location.
- **Save VMG Targets** - Click this button to save the best upwind and downwind angles to a tab delimited text file. You can import this file into Excel or another program or print it to use as a reference on deck.

- **Edit Polar Data** - You can select any wind speed that is stored in the polar file. By default, the lowest wind speed in the Polar File appears. Use the **Add Wind** and **Delete Wind** buttons to manage your polar data. There is no limit to the amount of wind speeds that can be stored in the polar file.
- **Polar Values Grid.** Use this grid to add, update or delete polar values. If all polar values are deleted, the corresponding wind speed will also be deleted. To add individual values, tab to the end of the row and a new row will appear. To delete an entry, select the row and press the **<Delete>** Hot Key or select the row and click **Delete Selected Row**.

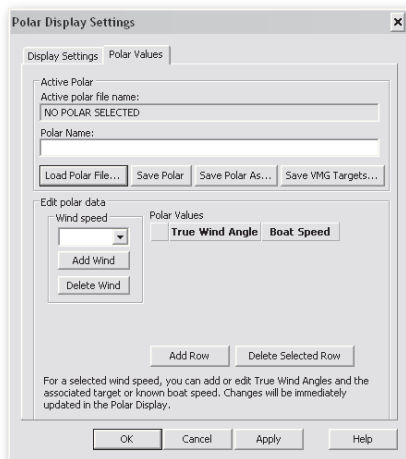


Figure 24.3 - Polar Display Settings - Polar Values tab

Managing Polar Files

Editing a Polar File



TIP: In order to enter Editing mode when using your mouse, you must select a single polar speed and unlock the polar file by ensuring the Lock Edit check box on the Polar Display is clear.

There are several ways to edit a polar file:

- **Keyboard**—In the Polar Display Settings window, Polar Values tab, add or delete wind speeds and polar values using the controls in the **Edit polar data** area.



NOTE: Press **<Tab>** or click **Add Row** to add another angle/speed row to a particular wind speed.

- **Drag and Drop**—Left-click on or near an existing polar point and drag the polar point to a different location on the polar diagram. If you drag one dot on top of another and release the mouse button, the two points become one. If you click on the diagram but not on or near a point, a new point is created.
- **Right click** on or near an existing polar point to remove it from the polar diagram.

Creating a New Polar File

If a polar has not been loaded, the message **NO POLAR SELECTED** appears in the Polar Display diagram. To create a new polar, follow the instructions listed in **Editing a Polar File**, then save the data as an SPP polar file.

You can also use the auto-record feature to determine your actuals and then edit your polar based on those results.

Saving the Polar File

Once you edit a file, you can save under a new file name.

1. From the Polar Display window, click **Settings**.
2. Select the **Polar Values** tab.
3. Click **Save Polar As...** The **Save As** dialog opens.
4. Type a new name for the polar in the **File name** box.
5. Click **Save** to save the file.
6. Click **OK** to close the Polar Values tab.

Lay Lines and On Screen Indicators

The **Tools | Options | Sailing** tab, provides a number of options that determine how sailing information is presented in the Chart window. These options include Apparent Wind Indicator, True Wind Indicator, Recent True Wind Angles, Lay Lines and Widest Lay Lines Seen. Apparent Wind Indicator is drawn on top of all other options. The average Lay line is based on the last 10 minutes of true wind speed and direction.

To Configure Wind Indicators and Lay Lines

1. Select Options from the Sailing menu to open **Tools | Options | Sailing**.

2. From the available options, select the settings you want for wind indicator fields, lay line fields, colors, line widths, Time To Go, and so on.
3. Click **OK** to save your selections.



NOTE: See **Chapter 8 - Properties and Options** for a full description of all fields in **Tools | Options | Sailing**.

The following are the onscreen indicators and colors for Sailing options:

Field	Color	Onscreen Indicator
Apparent Wind Indicator Color	Default Color: Black	The Letter A
True Wind Indicator Color:	Default Color: Black	The letter T
Recent True Wind Angles	Default Color: Black	Line color
Lay Lines Color:	Default Color:-Black	Line color
Boat Lay Lines Color	Default Color: Gray	Line color
Average Lay Lines Seen Color	Default Color: Navy	Line color

Table 24.2 - Sailing Display Onscreen Indicators

Lay Line Calculation

Lay Line calculation relies on variables such as boat performance, hull design, sail configuration, weight and wind speeds. As a result, some boats are able to sail more efficiently upwind than others.

For example, **Figures 24.4** and **24.5** show the polars from two separate boats. The polar in **Figure 24.4** shows a boat that points closer into the wind when wind speeds increase. **Figure 24.5** shows a boat that must have an optimal windward angle of about 50° at low wind speeds and 45° as the wind speed increases. Downwind performances of each boat are similar, with best performance at 145° in low winds and 175° in higher wind speeds.

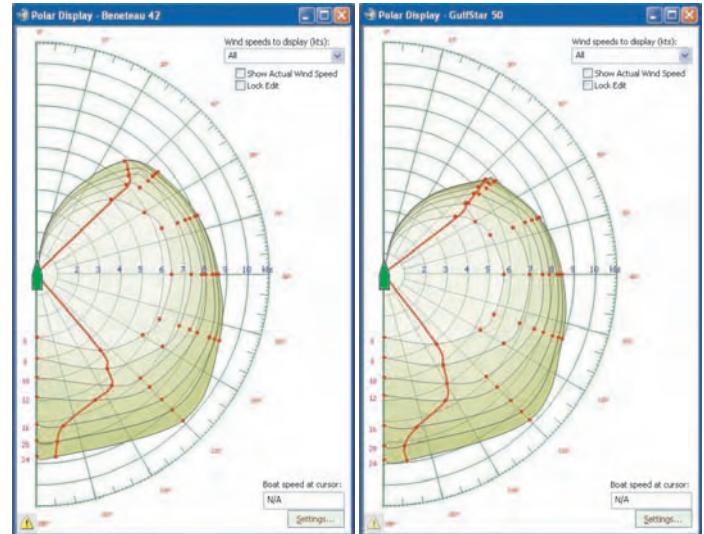


Figure 24.4 - Polar Example #1

Figure 24.5 - Polar Example #2

Sailing Plus Pack Lay lines are calculated from the polar angles of your boat and drawn from the mark. Lay lines are also drawn from the boat to indicate most efficient tacking (see **Figure 24.6**).

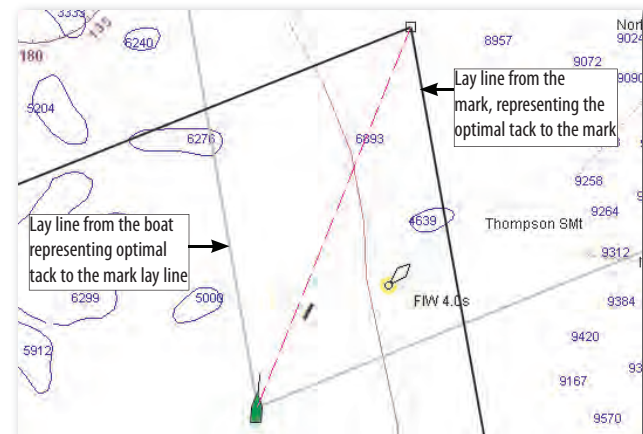


Figure 24.6 - Lay Lines to a Windward Mark

i NOTE: If a polar is not loaded or if your boat's polar values cannot be read, a default tacking angle of 45° will display, serving as a point of reference for basic upwind and downwind sailing.

Set and Drift Effect on Lay Lines

Currents can greatly impact a boat's ability to reach a Mark. Polar calculations only take into account Speed Over Water given wind angle and speed, but current information can play an equally crucial part in determining optimal lay lines. **Figure 24.7** shows how a following a suggested Lay line might place you off course over time if you do not account for currents.

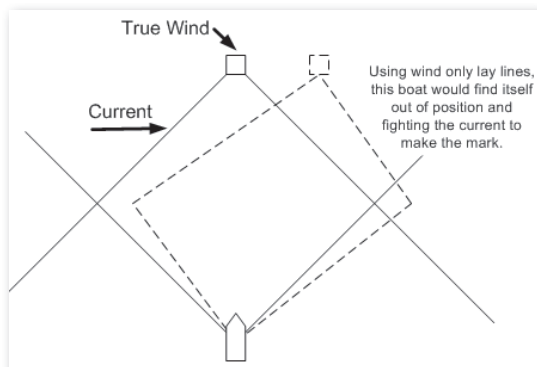


Figure 24.7 - Lay Lines and the Impact of Set and Drift

Adding Set and Drift calculations (**Tools | Options | Sailing | Use Set & Drift in Sailing Calculations**) can improve your overall Lay line calculation and increase your accuracy (see **Figure 24.8**).

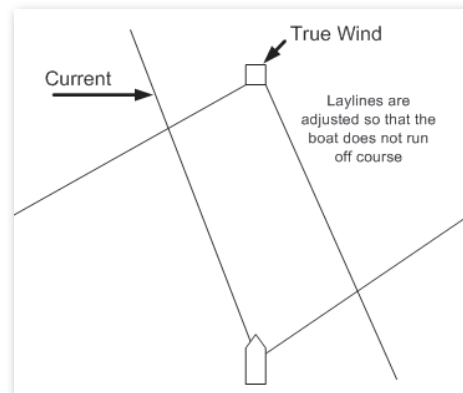


Figure 24.8 - Lay Lines Adjusted to Account for Set and Drift

Additional Features

Ockam® and B&G® Instrument Support

Sailing Plus Pack includes limited support for Ockam and B&G instruments.

i NOTE: A full list of Ockam and B&G Protocol sentences are listed in **Chapter 3 - Hardware Setup**.

Listening for Ockam or B&G Protocols

1. Open **Tools | Options | Ports: Configure**.
2. In the Input Ports column, place a check-mark next to the COM Port the Ockam or B&G hardware is connected to.
3. Click **Configure This Input Port...**
4. In the COM[n] Input Configuration field, select B&G or Ockam from the Protocol drop-down list; then click **OK**.

i NOTE: To set your COM Port to read NMEA (this is the default), follow the same steps but select NMEA 0183 from the Protocol drop-down list.



WARNING: Support for Ockam and B&G protocols has been tested on a limited basis. Use these options with caution and be prepared to rollback to NMEA if you are not receiving proper values using these protocols.

Adding a Polar Diagram to NavView

You can add a polar diagram to NavView using the View Manager.

To Add a Polar Diagram to a NavView

1. Enter **NavView** by clicking the **NavView** button on the main ToolBar, by selecting Window | NavView or by pressing <F9>.
2. Select **View**.
3. Select **View Manager**.
4. Edit a view as you normally would (see **Chapter 18 - NavView | View Manager** for instructions) selecting **Polar** as one of the view options in the **Edit the Layout** window.



NOTE: If you import a polar file from another program, Jeppesen Marine highly advises that you make a backup of that file first.

25 Tender Tracker (Admiral)

What is Tender Tracker?

The Nobeltec Tender Tracker Plus Pack is as an upgrade package available to users of Nobeltec Admiral who are equipped with a Seetrac® Tender Tracking™ System. Seetrac's Tender Tracking System is a stand-alone radio frequency transmission system that can be interfaced with your computer through a standard COM port connection. When properly configured, Tender Tracker provides onscreen, up-to-the-minute target data about smaller affiliate watercraft (called "Tenders"), including smaller boats, jet skis, wave runners or even passengers carrying a wireless Seetrac Tender Unit (STU). Tenders can be viewed onscreen using your Admiral target tracking capabilities and can greatly improve security and safety of these affiliate vessels and objects, keeping you constantly aware of their movements.



NOTE: Jeppesen Marine highly recommends that you use an approved Seetrac installer for Seetrac hardware installation.

The Tender Tracking System consists of a Seetrac Base Unit (SBU) and up to 99 STUs, one installed on each affiliate Tender. Typically the operational range of the wireless STU is five NM, although a long-range system is also available. STU transmissions are only visible to the vessel containing the SBU for that Tender, not to other vessels within range.

The SBU can be set to Autonomous or Managed Mode. In Autonomous Mode, Admiral will display STU signals as transmitted by the SBU. In Managed Mode, the SBU can be instructed to listen to STU channels for specific durations.

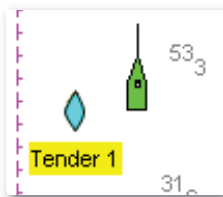


Figure 25.1 - Tender Onscreen Example

STU transmissions include COG, SOG, Range and Bearing from the main vessel, CTS, Depth and Wind, all of which are displayed in the Targets tab of the InfoBar or NavBar. The Tender is displayed as a target in the Chart window pane using a diamond-shaped target icon (see **Figure 25.1**) and standard target behaviors.

Unlocking Tender Tracker

Once you purchase Nobeltec Tender Tracker Plus Pack, contact your Jeppesen Marine product distributor for an Unlock Code. This code will unlock the Tender Tracker Plus Pack features already embedded in Admiral.

To use your Unlock Code to unlock Tender Tracker, follow the instructions on **Page 6 - Installing New Chart Permits and Unlock Codes**.

Setting Up Tender Tracker

Upon installation of the Tender Tracker Unlock Code, all Tender Tracker functionality is available. However, you still need to direct Nobeltec Admiral to look for SBU output in order to recognize Tender Tracker data and display affiliate objects onscreen as secondary targets.

To set up receipt of SBU data:

1. Open **Tools | Options | Ports: Configure**.
2. In the Input Ports column, place a check-mark next to the COM Port where the Seetrac Base Unit (SBU) is connected.
3. Click **Configure This Input Port...**
4. Change the Port Speed for the Seetrac COM Port to **9600** baud.
5. Click **OK** to close the COM Input Configuration window.



NOTE: If you are using **Managed Mode**, continue with Steps 6-10.

6. Place a check-mark next to the correct Output/Autopilot COM Port.
7. Click **Configure All Output/Autopilot Ports...**
8. In the **Select the NMEA strings to send to the output/autopilot:** field, place a check-mark next to **Tender Tracker-Managed Mode**.
9. Choose **EC - Electronic Chart Display** as the Talker identification.
10. Click **OK** to close the Configure Output/Autopilot Settings window.
11. Click **OK** to close the **Tools | Options | Ports: Configure** window.

Configuring the Tender Directory

Each STU has a unique ID Number that identifies it to the SBU. The STU can also have a designated channel that transmits data to the SBU if the SBU is in Managed Mode. Use the Tender Directory to provide a description for each STU based on ID Number. If you are using Managed Mode, use the Tender Directory to instruct the SBU to listen to each STU's designated channel for a specific period of time.

To set up the Tender Directory:

1. Open **Tools | Options | Targets**.
2. Click **Tender Directory....**
3. *Skip this step for Autonomous Mode.* If you are using Managed Mode, from the Tender Directory window, place a check-mark in the **Managed Mode** check box.



REMEMBER: SBU hardware must also be set to Managed Mode.

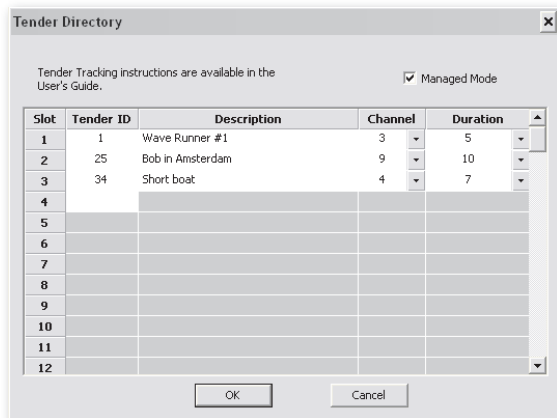


Figure 25.2 - Tender Directory

4. In Slot 1, input the ID and Description of the first Tender.
5. If you are in Managed Mode, input the Channel from which that STU is broadcasting and the Duration for the SBU to listen to this channel. In Autonomous Mode, Channel and Duration fields are "grayed out".
6. Continue inputting information for all Tenders currently active and carrying an STU device.

7. Click **OK** to close the Tender Directory.

To delete an STU from the Tender Directory:

1. Open **Tools | Options | Targets**.
2. Click **Tender Directory....**
3. Click on the Tender ID you wish to delete and press the **<Delete>** key.
4. Click **Yes** to verify deletion.
5. Click **OK** to close the Tender Directory.

Changing Target Appearance

To display Wakes and change Target Name appearance (all Targets):



NOTE: The Display Predictors option does not apply to Tenders.

1. Open **Tools | Options | Targets**.
2. Click **Display Wakes** to see how a target has moved over time.
3. Click the small down arrow next to the **Target Name Settings** option to change the appearance of the target names (Full, Short or None).



NOTE: Tender Short and Full names are identical - either option displays the description of the Tender, as input into the Tender Directory.

4. Click **OK** to complete these changes.

To change Tender Target colors:

1. From an open Chart window pane, right-click on the Tender.
2. Select **Tender Color** from the pop-up menu.
3. Select a color for this target from the color selector.
4. Click **OK** to complete these changes.

Locating a Tender Onscreen

To locate an active Tender:

1. Open the NavBar or InfoBar Targets tab.
2. Locate the active Tender you are searching for from the Targets drop-down menu.
3. Click **Find** to center that Tender onscreen.



NOTE: In PlanView, you can place a check-mark in the Lock check box to keep your chart centered on the selected Target.


Tender Tracker Alarms

Seetrac Alert


If your STU is equipped with an Alert function, users of the STU can raise an audible alarm within Admiral by pressing and holding the Seetrac Alert Button. An alarm message will appear onscreen when that alert is received. The message reads "Tender *ID* has sounded an onboard alarm. BRG XXX, distance XXX". Click **Acknowledge** to clear this alarm.

"Tender Out of Range" Alarm

If a Tender exits an established Tender Guard Zone, a Tender Out of Range alarm will sound and an alarm message will appear onscreen. This alarm will clear once the Tender re-enters the Guard Zone or can be turned off manually. Range for a Tender Guard Zone is between .0001 and 1000 units.

 **NOTE:** All units of measure are adjustable from **Tools | Options | Units**.

To create a Tender Guard Zone:

1. Open the Boat Properties Alarms dialog box using **Edit | Boat Properties** or right-click on the Boat, select Properties from the pop-up menu; then select the Alarms tab.
2. Place a check-mark in the Tender Alarm check box.
3. Click the  button to open the Tender Alarm Settings window.
4. Input a distance from the boat that you do not wish the Tender to exceed. This is a 360° radius around the vessel.
5. Select how you wish the alarm to function if the Tender crosses the Guard Zone (**No Sound**, **Sound Once** or **Sound Continuous**).
6. Click **OK** to close the Tender Alarm Settings window.

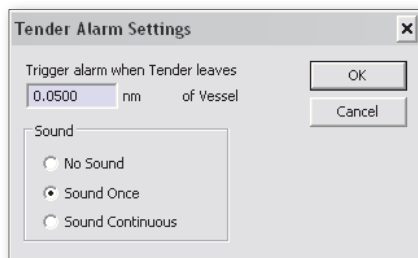


Figure 25.3 - Tender Alarm Settings

Glossary

Activation Key

See *Site Key*.

Active (route, mark, etc).

An active route or mark is that from which various data, such as *ETA*, range and bearing are calculated with respect to the vessel. If autopilot is enabled, it will steer toward an active mark and will proceed along an active route.

Aft

Means "towards the stern of the boat"

Aids to Navigation

Usually pertains to buoys, ranges and the like.

Air Draft

The maximum height of a ship.

AIS

See *Automatic Identification System*.

ARPA

See *Automatic Radar Plotting Aid*.

Annotation

A navigation object composed entirely of text. Its purpose is to place descriptions or other information on specific areas of a chart.

Apparent Wind Direction (AWD)

On-board wind direction measurements - the AWD - may not be the same as the *True/Theoretical Direction (TWD)*. Nobeltec Navigation Software derives *TWD* from *AWD* by taking any bearing deviation into account.

Apparent Wind Speed (AWS)

When the vessel is in motion, on-board wind speed measurements - the AWS - will differ from stationary measurements (*True/Theoretical Speed or TWS*). *TWS* is derived from *AWS* by taking the vessel's motion into account.

Automatic Identification System (AIS)

AIS provides a means of broadcasting digitally navigation information including ship position/speed/heading/dimension/name/destination/ROT, aids to navigation, base station reports and more. Created by the IMO and sanctioned by the U.S. Coast Guard for ship monitoring and collision avoidance. It is used by ship traffic monitoring and control locations throughout the world to improve situational awareness and help prevent collisions at sea.

Automatic Radar Plotting Aid (ARPA)

The functionality entailing the detection of moving targets and calculating their speed and course. Used to automatically detect radar targets and output to other devices, ARPA is a collision avoidance system.

Autopilot

A self-steering device which attaches to a ship's steering mechanism to control the ship's bearing.

AutoScroll

This feature allows you to more easily create routes and boundaries which exceed the parameters of the view window. As you come to the edge of the view window while creating or dragging objects, the chart will scroll automatically in the proper direction.

AWD

See *Apparent Wind Direction*.

AWS

See *Apparent Wind Speed*.

Azimuth

Azimuth of a body is the arc of the horizon intercepted between the North or South point and the foot of the vertical circle passing through the body. It is reckoned in degrees from either the North or South point clockwise entirely around the Horizon. (source: Our Restless Tides).

Bathymetric

Measurement of the depth, contours and slopes of the floor of a body of water (sea, lake, ocean or river), obtained through topographic charting.

Beam

Ship width.

Bearing (BRG)

The angle between the direction of the boat and the reference direction expressed in degrees, with a notation of True or Magnetic Variation (T or M). Due north corresponds to 0 degrees, east to 90, south to 180 and west to 270. For compass bearings, the reference direction is magnetic North. For true bearings the reference direction is true North.

Bearing from Boat to Cursor (BBC)

This data is an aid in route making and planning. BBC is expressed in degrees, with a notation of True or Magnetic Variation.

Boat Speed

The speed of the boat relative to the water.

Bookmark

A saved combination of chart selection, zoom level and position on the chart. Created with the **Set Bookmark** command, it may be returned to at any time with the **Goto Bookmark** command.

Boundary

A line created by the user. This software can be configured so that when the vessel or its predictor line crosses a boundary, an alarm will be triggered.

Bow

The front of a ship

Broadcast Notice to Mariner (BNM)

See Local Notice to Mariners (LNM).

Cartesian Coordinates

Also known as "Rectangular Coordinates". A two-dimensional plane contains an x-axis and a y-axis. Negative x coordinates lay to the left of the y-axis and positive x-coordinates to the right. Negative y coordinates lay below the x-axis and positive above the x-axis. Nobeltec Navigation Software' treatment of the x-axis does not always conform to Cartesian coordinates.

Chart

Nautical term for maps used in nautical navigation that show the depth of waters as well as land boundaries and other obstructions. Charts may be paper or electronic and electronic charts may be of raster or vector type.

Chart Permit/Unlock Code

Chart Permits unlock a Chart region, Unlock Codes unlock supplemental features. Each permit/code is made up of 20 digits laid out in the following convention: 12345-12345-12345-12345

Closest Point of Approach (CPA)

Predicted closest point a maneuvering boat will get relative to any target, moving or otherwise, located at a point on the relative movement line perpendicular to the reference ship. The minimum horizontal distance between two craft during a close proximity encounter.

COG

See Course Over Ground.

COM Port

The interface through which Nobeltec Navigation Software and your PC can communicate with peripherals. Visual series support 32 COM Ports.

Compass Rose

An image, overlaid on the chart, which displays both magnetic and true compass directions.

Console

A collection of optionally selected and configured panels which display various vital information. This information is continually updated.

Course

The direction a boat is being steered.

Course Over Ground (COG)

Is the track of the ship over the ground and is based on position changes.

Course To Steer (CTS)

Real time calculation of the ideal bearing the navigator should steer the boat towards to reach the next active waypoint.

CPA

See Closest Point of Approach

Cross Track Error (XTE)

The distance of a perpendicular line drawn from the ship to an active route leg. Determines how much the ship is straying from the course of a *Route*.

Current

The flow of water characterized by direction and speed. Current speed and direction may change with the tide.

See also *Ebb Current* and *Flood Current*.

Data Sentence

The unit of information sent between peripherals and Visual Series, conforming to the NMEA 0183 specification.

Datum Setting

Nobeltec Navigation Software assumes that the GPS will be outputting data at the WGS84 Datum. The setting is configured in the GPS.

Dead Reckoning

A method of navigation where known values (position, course, speed, time and distance to travel) are used to calculate unknown values. Values such as set and drift can also be incorporated.

Depth Sounder

See Sounder.

Deviation

Changes in the magnetic field due to the ferrous composition of surrounding objects affecting the measured direction of magnetic North. Deviation is measured as the angular difference in direction between the actual magnetic heading and the compass heading.

DGPS (Differential GPS)

A network of 60 radio beacons in conjunction with a GPS that sends correction information used to reduce positional error to the 1-3 meter range.

Digital Selective Calling (DSC)

A type of VHF radio that allows boats to contact other, similarly equipped boats using that boat's *MMSI Number*. DSC allows two radios to communicate selectively with each other while excluding other receivers from using the signal. DSC can report position information.

Dongle

Small hardware device that unlocks Admiral, VNS and international chart capabilities. Replaces the use of a *Serial Number* and *SiteKey*.

Dongle Number

Similar to the *Serial Number*, a Dongle Number is attached to the *Dongle*, made up of 20 digits in the following convention: 1234-123456-1234-123456

Draft

The extent to which a boat protrudes into water. The draft of a boat may vary due to changes in weight and changes in water salinity.

Drift

The cumulative effect of wind and current on the ship.

DSC

See Digital Selective Calling.

Ebb Current (Ebb)

Movement of tidal current away from shore or down a tidal river or estuary.

Electronic Chart Display and Information System (ECDIS)

A hardware/software/data marine navigation system that meets the specifications of the International Hydrographic Organization (IHO). An ECDIS is the only electronic system allowed to replace paper charts under the International Convention for the Safety of Life at Sea (SOLAS).

Electronic Chart System (ECS)

A system comprised of:

1. navigation software
2. navigation data
3. system hardware

An ECS is any combination of hardware and software that displays marine charts electronically. The term ECS is used specifically when ECDIS specifications are not met by the software/hardware system.

Electronic Navigation Chart (ENC)

An electronic data file containing information that could be used to display a chart.

Estimated Time of Arrival (ETA)

The calculated arrival time to an active mark or waypoint, assuming no change in present course and speed or weather conditions. This time is based on computer clock time. For greatest accuracy, make sure computer clock is synchronized with real time.

Fish Finder

See Sounder.

Flood Current (Flood)

The movement of tidal current up the shore or up a tidal river or estuary.

Geo-reference

To establish the relationship between page coordinates on a planar map and real-world coordinates.

GlassBridge™ Network (GBN)

A group of computers that are combined together to share data between the computers. This feature is only available in Nobeltec Admiral.

Global Positioning System (GPS) (modified)

A worldwide radio-navigation system developed by the US. Department of Defense. In addition to military purposes it is widely used in marine, terrestrial navigation and location based services. Uses stationary satellites or a surface signal to locate the ship with a very high degree of accuracy. The term GPS is frequently used to refer to GPS receivers.

GPS

See Global Positioning System.

Great Circle

A Great Circle is the shortest distance between two points on a spheroid. A great circle is formed at the edge of a plane crossing through the center of a sphere. Unlike Rhumb Lines, great circles generally do not have constant bearing (the equator and the meridians are prominent exceptions).

Greenwich Meridian

See Prime Meridian.

GRIB (GRIdded Binary)

A general purpose, bit-oriented data exchange format, GRIB is an efficient vehicle for transmitting large volumes of gridded data over high-speed telecommunication lines using modern protocols. GRIB weather communicates large weather data files efficiently.

Heading

The direction the ship is oriented.

Helmsman Display

Also known as a highway or horizon display. It graphically shows the user where the active leg and XTE limits are in relation to their position.

High Water (HW)

The maximum height reached by a rising tide.

Higher High Water (HHW)

The highest of the high water (or single high water) of any specified tidal day due to the declinational effects of the Moon and the Sun.

Higher Low Water (HLW)

The highest of the low water of any specified tidal day do to the declinational effects of the Moon and the Sun.

Hub

Any waypoint that serves as a juncture for two or more routes.

HyperTerminal

A program included in Windows which tests COM ports.

International Hydrographic Organization (IHO)

An organization that provides the specifications for what qualifies as an ECDIS.

Knot (Kt)

A speed unit of one international nautical mile (18520.0 meters or 6,076.11549 international feet) per hour.

Latitude

The designation for angles measuring how far North or how far South a position is. Value range is from 90°S to 0° at the equator to 90°N. Latitude values are represented by the Greek letter lambda (λ).

Lat/Lon

Any object's position, expressed in Latitude and Longitude.

Leg

The segment of a route between two waypoints.

Local Notice to Mariner (LNM)

A means for disseminating information concerning aids and hazards to navigation and other marine information of interest to mariners travelling in the waters of the United States, US territories and US holdings. These notices are essential to all navigators for the purpose of keeping charts, light lists, coast pilots and other nautical publications up-to-date.

The USCG publishes LNM weekly.

Log

A record of the ship's movements and a place for manual text entries.

Longitude

The designation for angles measuring how far West or how far East a position is. Value range is from 180°E to 180°W. Values of longitude are represented with the Greek letter phi (ϕ).

LORAN (LOng Range Aid to Navigation)

LORAN is a terrestrial-based navigation system using the time interval between radio signals to determine the position of the receiver. LORAN was popular with marine navigation prior to the existence of GPS. The current version of LORAN in use is LORAN-C. LORAN fails under different conditions than GPS, arguably making it a complementary radio-navigation system.

Low Water

The minimum height reached by a falling tide.

Lower High Water (LHW)

The lowest of the high waters of any specified tidal day due to the declinational effects of the Moon and the Sun.

Lower Low Water (LLW)

The lowest of the low waters (or single low water) of any specified tidal day due to the declinational effects of the Moon and Sun.

Magnetic Variation

The degree to which the magnetic north differs from the true north. This data is available from the *Compass Rose* on a chart.

Man Overboard (MOB)

Mark that can be placed on a digital chart to indicate emergency location. NNS will track that location to aid in returning the boat to MOB coordinates.

Maritime Mobile Service Identity (MMSI)

MMSI Numbers are a series of nine digits transmitted over a DSC radio path in order to uniquely identify ship stations, ship earth stations, coast stations, coast earth stations and group calls. These identities can be used by telephone and telex subscribers connected to the general telecommunications network principally to call ships automatically.

Mark

In general, any created object on a chart (routes and boundaries are composed of marks). Specifically, marks are objects created using the Mark tool and can be displayed as a number of different icons. A mark may have a name, annotative information and an icon.

MARPA

See Mini Automatic Radar Plotting Aid.

Mean High Water (MHW)

A tidal datum. The average of the higher high water heights observed over the National Tidal Datum Epoch.

Mean Higher High Water (MHHW)

A tidal datum. The average of all the high water heights of each tidal day observed over the National Tidal Datum Epoch.

Mean Low Water (MLW)

A tidal datum. The average of all the low water heights observed over the National Tidal Datum Epoch.

Mean Lower Low Water (MLLW)

A tidal datum. The average of the lower low water height of each tidal day observed over the National Tidal Datum Epoch.

Mercator Projection

The Mercator projection is a conformal projection devised by Gerhardus Mercator in 1569. Similar to a cylindrical projection in that the horizontal and vertical distances are stretched towards the poles. Unlike the cylindrical projection the vertical and horizontal stretching of the chart preserves shape and direction. Due to increasing distortion towards the poles Mercator charts are not very useful for representing cartographic information towards the poles.

Lines of latitude and longitude are straight lines on the Mercator projection.

On Mercator charts, rhumb lines can be drawn as straight lines because the Mercator projection preserves bearing.

Mini Automatic Radar Plotting Aid (MARPA)

A feature of contemporary radars that greatly enhances their ability to track targets, lock on, estimate closest point of approach, calculate the target's true speed and course and output this information to other devices.

MMSI

See Maritime Mobile Service Identity.

MOB

See Man Overboard.

National Marine Electronics Association (NMEA)

This organization has determined a standard, 0183, to which all data transmission to and from marine peripherals must conform. The NMEA issues standards for interfacing marine electronics devices. Pronounced "nee-ma". Not to be confused with NEMA (National Electrical Manufacturers Association).

Computers directly connected to NMEA producing devices (GPS, heading sensor, etc). receive raw NMEA data. This data conforms to the NMEA 0183 (3.01) specification.

See also NMEA 0183 and NMEA 2000.

Native Scale

The original scale of a paper chart from which an electronic chart is derived. (Also known as Source Scale).

Neap Tides

Neap tides are especially weak tides with a decreased range. They occur when the gravitational forces of the Moon and the Sun are perpendicular to one another (with respect to the Earth). Neap tides occur during quarter moons.

See Tidal Currents.

Network Identity

The name of the network to which the computer is currently connected.

NMEA

See National Marine Electronics Association.

NMEA 0183

NMEA 0183 defines the electrical interface and data protocol for communications between marine instrumentation. Many times referred to as "NMEA" in the context of marine instrumentation communications.

NMEA 2000

This standard contains the requirements for a serial data communications network to inter-connect marine electronic equipment on ships. It is multi-master and self configuring and there is no central network controller. Equipment designed to this standard will have the ability to share data, including commands and status with other compatible equipment over a single channel. (source: <http://www.nmea.org/pub/2000/>)

NOAA (National Oceanic and Atmospheric Administration)

NOAA is a federal agency focused on the conditions of the oceans and the atmosphere. NOAA supplies navigation chart information for the coastal U.S. and the Great Lakes region.

Pan

To move the view window over the chart. (Also called Scrolling).

Panel

An individual, movable display of specific information.

Passport World Deluxe Data Kits

CDs or DVDs that contain Raster, Photo, 3-D, Bathymetric and additional data. Once vector charts are installed, use these discs to install additional data.

Photo Chart

A raster chart containing photographic chart imagery.

PlanBook

A text-based route planning and creation tool included in Nobeltec Navigation Software.

Polyconic Projection

The polyconic projection involves projecting the surface of the Earth onto a series of cones situated with their apexes over the poles.

Port

Port designates the left side of a boat as seen standing on the deck facing toward the bow. Port side is indicated with a red light.

Predictor

A line displayed in front of the vessel showing where the boat will be after a specified period of time, assuming no intervening heading or speed changes.

Prime Meridian

The meridian of longitude which passes through the original site of the Royal Observatory in Greenwich and used as the origin of Longitude. Also known as the Greenwich Meridian.

Processed NMEA Sharing (The Nobeltec Packet)

Once Admiral has received raw NMEA data and configured COM port priorities, the official status and position (COG, SOG, LAT, LON, etc.) of the vessel can be determined using the GlassBridge data-sharing features. This preferred data can be shared with other copies of Admiral on the GlassBridge Network. By default Admiral is configured to share processed NMEA data.

Program DVD

Will clearly show the program title (Admiral, Visual Navigation Suite or Tides & Currents), product version (9.0, 4.1, etc.) and build number.

RADAR (RADio Distancing And Ranging)

Microwave pulses used to detect objects (usually metallic) based on wave reflection.

Radio Technical Commission for Maritime Services (RTCM)

In the United States, the Federal Communications Commission (FCC) and U.S. Coast Guard use RTCM standards to specify radar systems, Emergency Position Indicating Radio Beacons and the basic version of Digital Selective Calling (DSC) radios.

Range

The distance between two specified points, usually the ship and a mark.

Range from Boat to Cursor (RBC)

The distance between the ship icon and cursor.

Raster Chart

Charts where the chart information is stored as a rasterized image. Examples are raster charts are Raster Plus (RPL), BSB and GeoTIFF. Rasters are the scanned images of the original paper chart.

Rate Of Turn (ROT)

The speed at which heading is changing.

Repeater

A feature used to output all incoming NMEA data to other devices.

Rhumb Line

A Rhumb Line is a line of constant bearing. Unlike great circles, rhumb lines are usually not the shortest path between two points on a sphere. Part of the utility of rhumb lines is that they can be drawn as straight lines on Mercator projections. Rhumb lines have the advantage of being easy to navigate because they follow a constant bearing. The parallels of the earth are examples of rhumb lines. Rhumb lines are undefined values at the poles.

A rhumb line of sufficient length will usually tend to spiral around the earth towards a pole forming a loxodrome. Such spiraling rhumb lines will form a logarithmic spiral on a polar stereographic projection.

ROT

See Rate Of Turn.

Route

Desired path of travel, created on a chart or grid and consisting of starting, ending and any number of interim waypoints. Nobeltec Navigation Software can instruct a properly connected autopilot to steer along the path of a *Route*.

Scroll

To move different parts of a long list into view, using the arrow buttons or scroll bar. Also, scroll is often used as a synonym for pan.

Serial Number (*North America only*)

Software identification number that also serves as a customer's Nobeltec ID. Made up of 20 digits laid out in the following convention:
1234-123456-1234-123456.

Set

The cumulative effect of wind and current on the direction of a ship.

Site Code (*North America only*)

Eight letter code (ABCD-EFGH) provided during initial software installation. Used when contacting Nobeltec - website or phone. Based on your unique *Site Code*, Nobeltec will generate and provide a Site Key (also known as Activation Key/Code or Unlock Code). *Not to be confused with the Site Key*.

Site Key/Activation Key (*North America only*)

Eight letter key (ABCD-EFGH) provided by Nobeltec, generated based on your unique *Site Code* and required to activate Nobeltec Navigation Software during initial installation. You have thirty (30) days to use the software before the *Site Key* is required. *Not to be confused with the Site Code*.

Slack Water (Slack)

The state of a tidal current when its speed is near zero, especially the moment when a current changes direction and its speed is zero.

SOG

See Speed Over Ground.

Sonar (SOund Navigation And Ranging)

The usage of ultrasonic pulses to detect submersed objects by their reflection.

Sounder (also known as Fish Finder or Depth Sounder)

A Sounder uses ultrasonic pulses to detect the distance to the sea floor, calculating the time interval between signal transmission and the detected reflected signal.

SOW

See Speed Over Water.

Speed Over Ground (SOG)

SOG is the actual, fixed, geographic speed of a ship over the earth's surface. It is essentially the *Speed Over Water (SOW)*, plus the cumulative effect of wind and current.

Speed Over Water (SOW)

Sometimes called Speed Through Water (STW), SOW is the relative speed of the vessel over water surface. *See also Speed Over Ground (SOG)*.

Starboard

Starboard designates the right side of the boat as seen standing on the deck facing toward the bow. Starboard side is indicated with a green light.

Stern

The rear of a ship.

Streets & Roads disc

Contains on-land road mapping data for North America only.

Subroute

A route which serves as an alternative to a section of another route.

Target

In nautical terminology, a target is generally an obstacle or object in or near the water to avoid for the purpose of safe navigation.

Target Threat

Nobeltec Navigation Software is capable of detecting targets that are too close to your ship. When you establish a boundary around your ship, a target that encroaches that boundary is considered a Target Threat.

TCPA

See Time to Closest Point of Approach.

Thumbnail/QuickView

A small preview image of an entire chart, also called a QuickView, displayed in the Chart Table dialog to aid you in choosing the correct chart. Raster only.

Tidal Currents

Tidal currents (a horizontal motion) are a result of the rise and fall of the water level due to tides (a vertical motion). The effects of tidal currents on the movement of water in and out of bays and harbors can be substantial.

See Neap Tides.

Tide

The change in ocean levels due to gravitational influences external to the Earth. Formulas for calculating tides can be found in tide and current tables provided by NOAA and the British Admiralty. The explanation of how tides work was first proposed by Isaac Newton in 1687 in his *Philosophiae Naturalis Principia Mathematica*.

Time to Closest Point of Approach (TCPA)

This is the time remaining until the closest point of approach of a target.

ToolBar

A collection of shortcut buttons grouped in a logical manner; Nobeltec Navigation Software ToolBars are independently movable and dockable.

Track

An onscreen and/or logged record of a ship's previous movements.

Time To Go (TTG)

The amount of time estimated until the ship reaches an active mark, assuming no intervening change in course or speed. Displayed in hours and minutes.

True/Theoretical Wind Direction (TWD)

See Apparent Wind Direction (AWD).

True/Theoretical Wind Speed (TWS)

See Apparent Wind Speed (AWS).

TTG

See Time To Go.

United States Army Corps of Engineers (USACE)

The USACE is responsible for investigating, developing and maintaining national water and related environmental resources. USACE is also a provider of inland waterway charts.

United States Coast Guard (USCG)

A part of the Department of Transportation, the Coast Guard enforces federal laws related to smuggling, ship safety, port security, spillage, pollution and other marine environmental protection issues. The Coast Guard also maintains ships and other vessels, aircraft and communications facilities for search and rescue missions. USCG maintains a network of aids to navigation; including lighthouses, buoys, icebreakers and radio devices

Universal Transverse Mercator Projection (UTM)

UTM is similar to the Mercator projection except the projecting cylinder is mapped transverse to the meridians and the Mercator projection used is a secant variation where the map scale to nominal scale is 0.9996.

The UTM segments the earth into 60 six degrees of longitude wide zones where the cylinder is oriented along the central meridian of a zone. The zones extend from 84°N to 80°S. The sixty zones start 180 degrees east and proceed eastward. The usage of zones allows the UTM projection to be used over the entirety of the Earth while minimizing distortion towards the poles.

Unlock Code

See Chart Permit.

Variable Range Marker (VRM)

Term describing a circle around the boat. When enabled, the VRM can be manually manipulated to change the radius.

Variation

Also known as Magnetic Variation and Declination. The angular difference in direction between true North and magnetic North.

Vector Chart

A chart where chart information is stored in terms of points, lines and polygons. NCX and TX-97 charts are vector chart formats.

Velocity Made Good (VMG)

The speed at which the boat is moving towards its intended destination, regardless of the ship's direction.

Vertical Datum

For marine applications, a base elevation used as a reference from which to reckon heights or depths. It is called a tidal datum when defined in terms of a certain phase of the tide. Tidal datums are local datums and should not be extended into areas which have differing hydrographic characteristics without substantiating measurements. In order that they may be recovered when needed, such datums are referenced to fixed points known as bench marks. (source: Our Restless Tides).

View Locator

A red, rectangular outline in the QuickView Window which represents that area of the chart visible in the main view window.

View Manager

Screen layout tool that allows you to determine which hardware products and features of Nobeltec Navigation Software you wish to display onscreen.

VMG

See Velocity Made Good.

VRM

See Variable Range Marker.

WAAS

See Wide Area Augmentation System.

Waypoint

A mark of which routes are made. The ship, when following a route, steers by successive waypoints.

Wide Area Augmentation System (WAAS)

A system of ground stations providing GPS signal correction information. WAAS-capable GPS receivers can have position accuracy closer than three meters 95% of the time.

World Folio DVD

Contains the entire world of vector charts. Open World Folio regions with permit codes purchased from Jeppesen Marine or an authorized Nobeltec product dealer.

XM/WxWorx

XM is a satellite provider who streams radio content. www.xmradio.com. WxWorx provides a weather feed over the XM network, enabling marine customers to see weather data in a WxWorx application overlaid inside NNS.

XTE

See Cross Track Error.

Zoom

To change the apparent scale of a chart in the view window.

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Product Feature	VNS	Admiral
Hand Panning Tool	✓	✓
GPS Satellite Strength/Trip Odometer NavBar	✓	✓
Free GRIB Overlay	✓	✓
Includes Worldwide Tides & Currents™ until 2100	✓	✓
ETA Calculator Integrating Tides	✓	✓
Nobeltec Route Wizard	✓	✓
PlanBook	✓	✓
Nobeltec Radar Support	✓	✓
Nobeltec Sounder Support	✓	✓
Nobeltec Sailing Plus Pack Support	✓	✓
Nobeltec Bathy Recorder™ Plus Pack Support	✓	✓
Video Camera Support	✓	✓
XM Plus Pack Support	✓	✓
Tender Tracker Plus Pack Support		✓
OCENS WeatherNet Pre-Installed		✓
Enhanced AIS Filtering		✓
Enhanced Nobeltec Radar Support		✓
Track Line Coloring		✓
GlassBridge™ Network Support		✓
Multi-Monitor Support		✓
NavView Interface		✓
NavView Auto Hide		✓
Customizable Vessel Sizing		✓
ARPA Support for External Radars		✓
MARPA Target Tracking		✓
GRIB Weather Animation		✓
Customizable NavInfo Panels	1 Panel	4 Panels

Product Features

This product features table compares some of the key features of Nobeltec® Visual Navigation Suite™ and Admiral™ 9.

Use this table to determine if a feature is available in the product you are using. *

Both products include real-time tracking, autopilot interface, GPS upload/download, quilting for seamless charts, Geo-Draw charting engine, unlimited routes/marks/waypoints and 3D Navigator.


Additional common features include AIS and DSC support, Video Camera support, Garmin USB GPS support, boundaries & alarms, free US planning charts, course up/north up chart rotation and much more.

** Product features are subject to change.*

Hot Keys

Unless otherwise noted, a Hot Key will only function on the corresponding window pane or object when that window pane or object has focus.

Program Component	Hot Key	Hot Key Function
General Application	<Ctrl+C>	Copy (Text Only)
	<Ctrl+Insert>	Copy (Text Only)
	<Ctrl+V>	Paste (Text Only)
	<Shift+Insert>	Paste (Text Only)
	<Ctrl+X>	Cut (Text Only)
	<Ctrl+Z>	Undo (Text Only)
	<Alt+Back>	Undo (Text Only)
	<I>	Return to Day Mode
	<Ctrl+I>	Twilight/Night/Day Mode toggle
	<Ctrl+P>	Opens the Print Wizard
	<F1>	Opens PDF of User's Guide (this document)
	<F4>	Places a MOB mark beneath Boat Lat/Lon. Opens vector chart if one is not currently open.
	<Ctrl+Shift+F4>	Close all open windows (PlanView only)
	<F6>	Cycle to next view
	<Shift+F6>	Cycle to previous view
PlanBook	<F9>	Toggle between PlanView and NavView
	<F9>	Enter NavView
PlanBook	<F1>	Opens PDF of User's Guide (this document)

Program Component	Hot Key	Hot Key Function
Chart Window	<↑> <↓> <←> <→>	Scroll chart in arrow direction
	<Ctrl+↑> <Ctrl+↓> <Ctrl+←> <Ctrl+→>	Limited scroll in arrow direction
	<Shift+↑> <Shift+↓> <Shift+←> <Shift+→>	Drag selected object
	<Shift+Page Up> <Shift+Page Down> <Shift+End> <Shift+Home>	Drag selected object
	<Page Up>	Scrolls chart up and right
	<Page Down>	Scrolls chart down and right
	<End>	Scrolls chart down and left
	<Home>	Scrolls chart up and left
	<Tab>	Select next object in the Chart Window
	<Shift+Tab>	Use next radar
	<Delete>	Delete selected object
	<Application Key> 	Show right-click Context Menu for selected object
	<F2>	Centers Chart Window on boat
	<Ctrl+F2>	Center on Boat - Course Up/Max Ahead
	<F3>	Toggle Radar Overlay On/Off
	<F4>	Creates MOB mark beneath boat Lat/Lon
	<F5>	New event mark beneath boat
	<F7>	New Mark at cursor

Program Component	Hot Key	Hot Key Function
Chart Window (cont).	<F8>	New Route
	<F10>	Goto Bookmark
	<Shift+F10>	Set Bookmark
	<F11>	Radar Standby/Transmit
	<F12>	Range Bearing Line - Boat to Point
	<Shift+F12>	Range Bearing Line - Point to Point
	<Alt+Enter>	Opens the Properties Menu for object with focus
	<Ctrl+A>	Set Anti-aliasing - Crystal View (<i>Raster charts only</i>)
		Turns Hand Panning On/Off
	<C>	Toggle contours
	<Shift+C>	Toggle Current Arrows
	<D>	Turns on Depth Soundings. Toggles Depth Soundings de-clutter on/off.
	<Ctrl+Shift+F>	Enter Fleet Manager
	<G>	Toggles Chart Grid on and off
	<H>	Heading Up
	<L>	Toggle land features
	<N>	North Up
	<O>	Toggle vector other layers
	<Ctrl+O>	Opens the Chart Table
	<P>	Toggle Passport outlines
	<Ctrl+P>	Opens the Print Wizard
	<Q>	Toggle Quilting
	<R>	Toggle Range Rings on/off
	<Shift+R>	Toggle Leg Range Bearings
	<Ctrl+R>	Toggle Relief
	<S>	Toggle Soundings
	<T>	Toggle Tracking
	<Shift+T>	Toggle Tide Bars

Program Component	Hot Key	Hot Key Function
Chart Window (cont).	<Ctrl+U>	Opens SkyMate window (usable only when SkyMate has been selected as your weather provider)
	<+>	Zoom In
	<->	Zoom Out
	<Esc>	Cancel tool (route, boundary, etc).
3D View	<Space Bar>	Hold this key down to temporarily clear all Passport data layers
	<↑> <↓> <←> <→>	Rotate chart in arrow direction
	<F5>	New Event Mark at boat
	<F5>	New Event Mark at boat
Sounder	<F7>	New Mark at cursor
	<I>	Next screen mode color
	<Esc>	End tool
	<Esc>	End tool
Radar View	<+>	Decrease range (zoom in)
	<->	Increase range (zoom out)
	<Space Bar>	Declutter view
	<Esc>	End current tool, back to mouse pointer
	<Shift+Tab>	Next Radar
	<Ctrl+Shift+F>	Open Fleet Tracking dialog
	<F2>	Re-center Radar
	<F6>	Cycle NavView layout
	<F11>	Radar Standby/Transmit

My Nobeltec Program & Chart Information

[illegible]

Nobeltec Navigation

InSight Radar 2 - Black Box

The IR2— Black Box™ (IR2-BB™) is a black box technology for "tapping" into the data signal of pre-existing radar. By interfacing existing radar with the IR2-BB, radar images can be viewed right on top of electronic charts and work seamlessly with Nobeltec Admiral and VNS.

Brings Older Radars Back to Life — the IR2-BB provides boaters with an existing radar the opportunity to update to the latest radar display technology.

Radar Made Safe, Easy and Effective — Important navigation information available from a single source: anti-collision information from your radar and navigation information from Nobeltec Navigation Software.

**The IR2-BB must be installed by a qualified marine electronics installer; installing this product may void your radar's warranty. Contact your Nobeltec dealer or Jeppesen Marine for more details.*

Nobeltec Product	Part #
InSight Radar 2 - Black Box	RHBXX00002

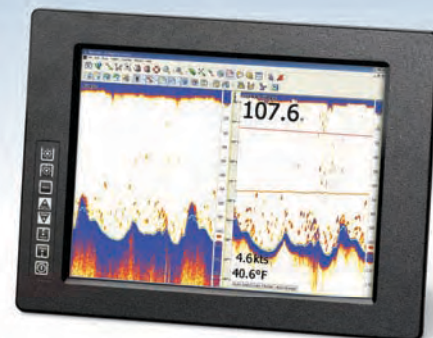


InSight Sounder

Whether using for safety or fishing, the InSight Sounder delivers superior performance and features for the integrated PC navigation system. It provides exceptional target and bottom detail and a wealth of standard and advanced features such as dual frequencies, temperature display and range, gain and shift settings.

The InSight Sounder integrates with both Visual Navigation Suite and Nobeltec Admiral 7.1 and higher to create a complete sounder/chart plotter solution. When used with either of these programs, you can view your chart and sounding information in SplitScreen™ mode or in a single dedicated window. The InSight Sounder also offers unlimited custom color schemes, night and twilight vision support and a shallow water alarm.

Nobeltec Product	Part #
InSight Sounder	RHSXX00003



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